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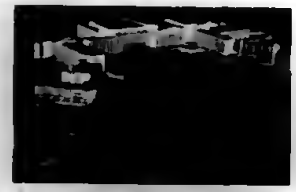
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COMPUTERWORLD
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Issue Date: May 8, 2000
Advertising Deadline: April 3, 2000

### Computerworld's Premier 100 IT Leaders Magazine

Computerworld's May 8, 2000 Premier 100 IT Leaders magazine will reveal the results of Computerworld's extensive research to identify today's Premier 100 IT Leaders. This research incorporates Computerworld's IT Leaders Index, Computerworld's Premier 100 IT Leaders Nomination Panel, and results of Computerworld's extensive Premier 100 IT Leaders Survey.

#### The Computerworld IT Leaders Index

Based on a series of in-depth interviews with CIOs, CEOs, and Senior Vice Presidents of Technology, Computerworld identified a set of common characteristics that describe successful IT Leaders. We call this set of characteristics the Computerworld IT Leaders Index.

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**IN THE WEB LAB**
If you build it, will they come? A dot-com start-up tried out its design with test users in the lab. Page 52



**TRIAL BY FIRE**
A weekly journal of the triumphs and trials of a security manager. Page 64

**HELLO, BIG BROTHER**
Like it or not, you may end up monitoring employees' e-mail. Here's how to do it without getting swamped. Page 72

# COMPUTERWORLD

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# NEWBIE LEADERS

UST BEEN PROMOTED FROM THE WORKER-BEE ranks to a management position? Gary H. Anthes talks to four new IT leaders about the challenges of letting go of old work habits, pulling back from day-to-day details and getting things done through other people.

*Story begins on page 48.*

# HITACHI SHRINKS MAINFRAME LINE

*Users, analysts fear fewer choices, higher prices as Trinium, Pilot sales to new customers are halted*

BY JAIKUMAR VIJAYAN

Hitachi Data Systems' unexpected decision last week to scale back its mainframe product line could slow the torrid pace of mainframe hardware price reductions — and give IBM nearly free rein to set high-end system prices, warned users and analysts.

San Jose-based Hitachi, which in recent years has set the performance standard for the highest-end mainframes, said it will stop selling models of its top-of-the-line Trinium and its midrange Pilot series to new customers. Hitachi will continue to offer maintenance and service to existing customers and system upgrades to current Trinium users, though there will be no future Pilot models, said Chris Worrall, a Hitachi vice president.

Hitachi's move, coming less than a month after it unveiled new performance-leading mainframes, startled both users and analysts, who said they feared that the company was on its way out of the mainframe market.

"I just can't believe they are walking away from the market like this," said Andy Balazs, vice president of information services at Medical Mutual of Ohio in Cleveland. "They have good products."

Medical Mutual swapped out a Hitachi mainframe last fall after IBM offered to buy out the original lease and put

*Hitachi, page 16*

# DOT-COMS WARY OF PRIVACY BILLS

*DoubleClick furor may push regulation drive*

BY PATRICK THIBODEAU

Drugstore.com Inc. uses e-mail to inform customers of prescription refills and new products. It's an important means of customer contact. But Congress and most states are considering privacy laws that could make that harder to do.

Five major Internet privacy bills are in Congress, and others will likely be considered in 44 states — every state with a legislative session this year. The bills may affect everything from Web site design to the bottom line.

*Privacy Laws, page 99*

# OXFORD REBOUNDS FROM IT DISASTER

*HMO profitable again after systems overhaul*

BY JULEKHA DASH

More than two years after posting big losses — largely because of major computer system problems — Oxford Health Plans Inc. is back in the black. Analysts and company executives have credited better systems for the turnaround.

The Trumbull, Conn.-based managed care organization posted profits for the fourth and third quarters of 1999. A year ago, Oxford had almost $20 million in losses, excluding charges.



SCHNEIDER: All units file claims using same tool

The third quarter was the first time Oxford had reported any major profits since mid-1997, when claims-processing failures contributed to its financial descent.

Oxford now has 1.5 million

*Oxford, page 16*

# MICROSOFT ANSWERS ASP CHALLENGE

*Strategy parries threats to software licensing*

BY DOMINIQUE DECKMYN

The World Wide Web has put Microsoft Corp. in reactive mode once again. Instead of fighting a skirmish over browsers, this time the company is battling over its fundamental software licensing model.

Microsoft is positioning Windows 2000 and Windows DNA 2000 as a platform for application service providers. It's adapting its core applications, including Microsoft Exchange and Microsoft Office, for Web use. The company is investing in ASPs, as well as starting up its own hosted service. And in what may be a momentous move, Microsoft is exploring

*ASP, page 99*

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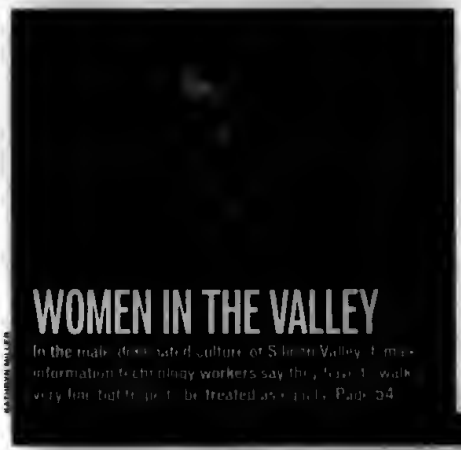

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## WOMEN IN THE VALLEY

In the male-dominated culture of Silicon Valley, female information technology workers say they have it made — very few but to be treated as equals. Page 34

## THE WEB'S MASTER BUILDERS

**A lucrative new career field is opening for Internet architects, who combine Web development, project management and business skills. Page 81**



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QUICKSTUDY

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70 **DIRECTORIES GIVE** companies a way to manage data specific to users and resources for an application, but they take some managing themselves.

72 **MONITORING EMPLOYEE** e-mail is becoming a necessary, if dirty, job in many companies.

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THERE'S A MYTH THAT YOU CAN TAKE HOT TECHNOLOGY AND APPLY IT TO TRANSACTIONS AND GET EFFICIENCIES.

**STEVEN ZERBY, E-COMMERCE COORDINATOR AT MARATHON OIL, ON THE POTENTIAL BENEFITS OR DRAWBACKS OF BUSINESS-TO-BUSINESS EXCHANGES. SEE PAGE 28.**

## OPINIONS


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36 **LENNY LIEBMANN** says corporate IT should run — not walk — toward instant messaging.

36 **RICHARD FRANKLIN** says the securities industry is holding itself back by continuing to use old back-office systems.

40 **KEVIN FOGARTY** writes that it's often more important how a site went up than how it goes down.

46 **PETER G. W. KEEN** says IT and accounting must come together to help ensure customer trust in e-commerce.

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100 **FRANK HAYES** says getting to know your end users is the best way to build good apps.

## AT DEADLINE

### White House Issues Internet Crime Report

**The White House last week issued a report on Internet crime that calls for new legal tools to track down criminals. It also asks businesses to "balance reasonable expectations of customer privacy" with security needs. For instance, the report said some businesses don't retain certain system data long enough to permit law enforcement to identify online offenders. The report drew criticism from the American Civil Liberties Union, which said it threatened online anonymity.**

### Yet Another Retail Exchange

**Essentus International Inc., a New York-based software vendor, said it's setting up an online exchange for manufacturers and retailers of apparel, footwear and other soft goods. Fashion.com is the third retail industry exchange announced in the past two weeks [Page One, March 6].**

### Short Takes

**FORD MOTOR CO. in Dearborn, Mich., last week signed on a new e-commerce partner, inking a deal with ZONETRADER.COM in Minneapolis to dispose of its used capital equipment. . . . MCDONALD'S CORP. in Oak Brook, Ill., said it's investing in FOOD.COM INC., an Internet-based food takeout and delivery service in San Francisco, calling it "an investment in the future." . . . INTEL CORP. introduced its own 1-GHz Pentium III chip, answering the debut of rival ADVANCED MICRO DEVICES INC.'s 1-GHz Athlon desktop microprocessor several days earlier. . . . Paramus, N.J.-based TOYS R US INC. said a $64 million charge to set up and operate TOYSRUS.COM in the fourth quarter helped lower its earnings for the three-month period ended Jan 29. . . . SUN MICROSYSTEMS INC. announced a program called iForce to help Internet start-up companies put their businesses online. . . . As expected, PEOPLESOFT INC. in Pleasanton, Calif., announced plans to offer application hosting services to users of its business software [Business, March 6].**

# Online Exchange to Sell Oracle Software

*Exchange would keep a share of revenue*

BY CRAIG STEDMAN

CHEVRON Corp. and McLane Co., a distribution business owned by Wal-Mart Stores Inc., are teaming with Oracle Corp. to set up an online exchange with a new twist: The exchange will sell Oracle's business applications and keep a cut of the revenue.

The Internet-based trading exchanges now proliferating in numerous industries are primarily looking at transaction fees as their main source of revenue.

But selling software "is an integral part of the business model" for the exchange that was announced last week for use by convenience stores and other small businesses, said Nancy Reyda, an e-commerce manager at Chevron who led the development of the plans.

The joint venture, named RetailersMarketXchange.com, is due to open this summer and may also sell point-of-sale software developed by other vendors, Reyda said.

Some of the revenue should be shared with the exchange, she added, because vendors would be able to reach "far more customers" than they could on their own.

### Users Play a Leading Role

The deal is seen by some analysts as a sign that technology users are starting to take a more central role in defining how online exchanges should work. Further evidence comes from a recent move by the Big Three automakers to force Oracle and rival Commerce One Inc. in Walnut Creek, Calif., to cooperate on a single auto industry exchange [Page One, March 6].

Users "are realizing that they have the power," said Pierre Mitchell, an analyst at AMR Research Inc. in Boston. "They're going to be running the show, and the [software vendors] are going to be along for the ride."

In the case of RetailersMarketXchange.com, for example, Chevron hatched the idea as a way to extend an extranet that was built for the owners of its gas stations and convenience stores to a much wider group of users, Reyda said.

The San Francisco-based petroleum company then enlisted Oracle and McLane, which is based in Temple, Texas. The companies will each own minority shares in the venture and offer equity positions to other convenience store retailers and suppliers that sign up to use the exchange.

### Third Big Exchange Deal

This is Oracle's third big exchange deal. In addition to the auto exchange, Oracle is setting up an online marketplace for retailers with Sears, Roebuck and Co. in Hoffman Estates, Ill., and Paris-based Carrefour Supermarche SA.

The auto and retail exchange won't sell applications themselves, according to Lou Unkeless, senior director of worldwide marketing at Oracle. "But we're very flexible," he added. "Every one of these large deals has a life of its own."

Oracle is the second software vendor that Chevron is working with to set up an online exchange. In January, Chevron said it was developing a procurement exchange for the oil and gas industry with Ariba Inc. in Mountain View, Calif. ◗

# Middleware Emerges for the Wireless Web

*Architecture eases sending of content*

BY CAROL SLIWA

For companies planning to send Web content to the growing number of wireless devices, new middleware products are emerging that should make the job somewhat easier.

Analysts predict that the products — such as the WebSphere Everyplace Suite IBM plans to announce today — will help companies tackle the challenge of delivering condensed versions of Web pages to small-screen devices.

"The bottom line is you want to avoid the situation where you author the content multiple times" for mobile phones, PalmPilots and PCs, said analyst Mike Gilpin at Cambridge, Mass.-based Giga Information Group Inc.

Companies can use a "transcoder" to translate and restructure data from the Internet programming language HTML to the Wireless Markup Language (WML) for display in devices.

But products alone can't solve the problem. Architecture also plays a key role. Analysts said firms that separate applications into distinct layers — for data access, business logic and presentation — will find a smoother path to the wireless frontier.



**PETER STEVENS, vice president at Sabre BTS, said he'd prefer to avoid homegrown systems**

In an ideal situation, a company can use at least some of the same business logic for wired and wireless applications, then create multiple presentation interfaces to a wide range of devices such as cell phones, PalmPilots and PCs, said Carl Zetie, an analyst at Giga. The business logic often resides in middle-tier application servers that link Web clients to back-end databases.

"The ones that face a big challenge are [companies] that took short cuts to get to three-tier architectures," Zetie said. "They're going to have to do a lot of rework on their middle-tier [business] logic to separate out the layers."

San Francisco-based online retailer Macys.com should be one of the lucky ones. It has no imminent plans to delve into the wireless arena, but it chose a component-based, multitier architecture "because we knew that there would be emerging technologies that would require a very flexible environment," said Jaake Jacobson, vice president of Internet technology at Macys.com.

WebSphere Everyplace Suite, which is due in the second half of this year, aims to transform and compress data, serve as the Wireless Application Protocol gateway, synchronize data between the device and the database, and manage devices and subscribers, IBM officials said.

Other key vendors that provide some of those functions include Oracle Corp. and San Mateo, Calif.-based AvantGo Inc. But before products became available, some pioneer users had to team up with consultants to build wireless Web applications.

### Growing Your Own

Sabre Business Travel Solutions (BTS), a division of Sabre Inc. in Fort Worth, Texas, worked with IBM and Finland-based Nokia Corp. on a homegrown system that employs XML to tag data before it's converted to WML. The system lets customers check flight information and gates from their cell phones.

But Peter Stevens, a vice president at Sabre BTS, said he'd prefer to avoid homegrown systems in the future.

"If I'm going to exist in a world where I have to rapidly develop two interfaces — Web and wireless — and also deal with the legacy environment of the agent on the phone, I'm going to need tools that help me design wireless Web interfaces faster," Stevens said. ◗

*Staff writer Bob Brewin contributed to this story.*

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# Manufacturers Face Wholesale Change

*Internet moves to center stage at trade show*

BY JAIKUMAR VIJAYAN

THE INTERNET is driving manufacturing companies to fundamentally reassess the way they operate, but most are at least a year away from buying and selling supplies and goods over the Web, according to industry representatives.

As manufacturers gather for the National Manufacturing Week trade show in Chicago this week, a majority are still trying to figure out how to take advantage of Internet technologies, said Jerry J. Jasinowski, president of the National Association of Manufacturers (NAM), a co-sponsor of the show. Washington-based NAM represents more than 14,000 U.S. manufacturing companies.

"There is a great desire on the part of manufacturers to put themselves in the middle of electronic commerce," Jasinowski said. But first they need to figure out what kind of business process changes are needed and how to integrate manufacturing systems with applications that let firms conduct e-commerce, Jasinowski said.

"It's going to be a steep learning curve for most manufacturers" for these reasons, said Neal Maclean, a director of e-commerce at CE Franklin Ltd., a Calgary, Alberta-based distributor of pipes, valves and fittings to the oil industry.

## Cost Concerns

A recent NAM survey of 250 companies showed that seven out of 10 companies weren't yet conducting e-commerce transactions because of cost concerns. And while 80% claimed to have a Web site, only 1% had any transactional links to back-end systems [News, Feb. 28].

But those numbers are likely to change quickly, as companies gear up for Internet competition, said Ron Anderson, president of AmericanManufacturers.com in Cocoa, Fla., a new online marketplace for manufacturers. The Internet is changing what was an insular industry, where "everybody had their nice little groups of suppliers and customers and everybody felt happy and secure," he said. "It's becoming much easier to shop price, location and availability over the Web, [and] manufacturers are realizing they need to get more competitive," he said.

Already, several large manufacturers have launched multifaceted initiatives aimed at extending their business to the Web while generating new revenue from separate Internet ventures. Examples include Eastman Chemical Co. in Kingsport, Tenn., and Du Pont Co. in Wilmington, Del., both of which are partnering with dot-com start-ups to set up online trading exchanges.

The Internet promises better efficiencies and lower costs across almost every aspect of the manufacturing process, from design engineering and plant maintenance, factory floor automation and manufacturing processes to supply chains and distribution, said Norman "Chip" Drapeau, president of MRO.com Inc., a Bedford, Mass.-based business-to-business portal for manufacturing companies. ▶

AT A GLANCE

### National Manufacturing Week

**What:** Trade show for North American manufacturers

**When:** March 13-16

**Where:** McCormick Place in Chicago

**Sponsors:** National Association of Manufacturers and more than 30 additional associations, societies, industry groups and trade journals

**Participants:** More than 2,100 exhibiting companies in more than 100 major product groups

**Training available:** The show features 120 sessions, short courses and certification programs

SOURCE: NATIONAL ASSOCIATION OF MANUFACTURERS

# NASD Asks SEC to Postpone Stock Decimalization Push

*Capacity needed for expected data traffic*

BY MARIA TROMBLY AND THOMAS HOFFMAN

The National Association of Securities Dealers Inc. (NASD) last week asked the Securities and Exchange Commission (SEC) to put off its plans to shift the nation's securities markets to decimal-based pricing until next year. The postponement would help the Nasdaq Stock Market Inc. and other entities increase their systems capacity to handle an expected threefold increase in data traffic with decimalization.

The Securities Industry Association (SIA) issued a statement in support of NASD's request. "This is a major undertaking for the industry, and we want to make sure that everything is done with as little risk as possible," said SIA spokesman Dan Michaelis.

In a letter sent to SEC Chairman Arthur Levitt last week, NASD Chairman and CEO Frank G. Zarb asked him to consider postponing the security industry's planned switch to pricing stocks in decimals rather than fractions. Slated to begin July 3, the move "would impose unacceptable risks" to the market because Nasdaq's systems won't be ready for the traffic increase in time, Zarb wrote.

A spokesman for the SEC said the agency had received the letter from NASD and "has no response at this time."

Nasdaq's quote-message traffic has more than tripled since 1998 because of an increase in stock trades, particularly technology stocks, and extended trading hours.

Nasdaq has seen a two-and-a-half-fold increase in quote and trade message traffic in the past nine months, said NASD spokesman Scott Peterson. That rate of increase could triple with decimalization, according to SRI Consulting, which produced the figures for a recent General Accounting Office report.

If the SEC moves ahead with the decimalization push on that schedule, slowdowns and crashes could result, said Gene Leganza, an analyst at Giga Information Group Inc. in Cambridge, Mass.

A delay in the transition would not only give Nasdaq extra time to build capacity, but it would also give some brokers a little breathing room.

Because decimalization would result in a drop in the spread between the selling and buying prices of stocks, some brokerages may see a drop in their revenues. ▶

### Nasdaq Is Booming

*Since 1998, Nasdaq's trading volume has increased:*

| | AVERAGE DAILY SHARE VOLUME | AVERAGE DAILY QUOTE REQUESTS |
|---|---|---|
| 1998: | 791M | 1.025M |
| 2000: (as of Feb. 18) | 1.70B | 3.870M |
| % increase | +115% | +278% |

SOURCE: NATIONAL ASSOCIATION OF SECURITIES DEALERS INC.

### MOREONLINE

For articles, stories and other resources related to decimalization, visit our Web site.
www.computerworld.com/more

# EDS Sued Over Alleged Scam

BY DEWAYNE LEHMAN

Two electronics companies said Electronic Data Systems Corp. drew them into a supposedly secret $80 billion to $120 billion NATO project that, after three years of work and millions of dollars spent, turned out to be a scam.

Akai Musical Instruments Corp. in Fort Worth, Texas, and Pioneer New Media Technologies Inc. in Long Beach, Calif., have filed lawsuits against Plano, Texas-based EDS. The suits, filed during the past two weeks, allege that EDS in early 1997 approached Akai and Pioneer to develop electronics equipment for a NATO security procurement project that was so secret it would be paid for using "Black Hole Money," according to court documents. The firms were also required to sign nondisclosure documents.

EDS, in a statement issued last week, said it, too, was a victim of the scam. The statement said EDS was acting as a coordinator for the various bidding vendors when it discovered the scheme late last year and reported it to the FBI.

A person posing as a U.S. Air Force officer reportedly asked EDS to do the secret project.

Akai and Pioneer developed audio signaling and speech-recognition equipment for the supposed project and were required to provide the equipment for testing at no cost, according to court documents.

Pioneer claims it shipped $1.5 million worth of equipment to Rekem, Belgium, and spent 3,000 hours developing and producing the equipment, as well as incurring other costs. The shipping address turned out to be a private residence, court documents stated.

Akai didn't list monetary damages, and a lawyer for the company refused to comment on the suit.

EDS said the lawsuit won't affect its financial position. EDS spokesman Bill Ritz refused to comment further.

A NATO spokesman said her agency had "nothing to do with" the alleged scam. ▶

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# BRIEFS

## VeriSign to Acquire Network Solutions

VeriSign Inc. in Mountain View, Calif., last week announced an agreement to acquire Network Solutions Inc. in Herndon, Va., in an all-stock transaction valued at $21 billion. The combined company will be able to deliver Internet infrastructure services required for e-commerce, from establishing an online presence to delivering authentication and secure transaction services, the firms said in a statement.

## Sun Buys Innosoft

Sun Microsystems Inc. said it will buy Innosoft International Inc. in West Covina, Calif., which makes Internet-standards-based messaging and directory products. Sun said the move is aimed at strengthening the product line operated through the iPlanet E-Commerce Solutions alliance Sun has with America Online Inc. and Netscape Communications Corp. Financial terms of the deal weren't disclosed.

## PC Perks at Intel

Not to be outdone by older, more traditional employers, Intel Corp. will ride a trend started by Ford Motor Co. in Dearborn, Mich., and issue a free Pentium III-based PC to each of its 70,000 workers worldwide. In an announcement last week, the chip maker said its goal is to create a more Net-savvy workforce to help it stay at the top of its industry. The company also wants to help its employees and their families participate in the Internet economy, a spokesman said.

## Microsoft Leaves SIIA

Microsoft Corp. last week resigned from the Software and Information Industry Association (SIIA), following the Washington-based trade industry group's filing of a friend-of-the-court brief against Microsoft in the ongoing federal antitrust case. Microsoft had been a member of SIIA for 14 years and paid the maximum dues of $125,000 per year, said SIIA President Ken Wasch. Microsoft Chief Operating Officer Bob Herbold, who had been a member of SIIA's 19-person board, announced his resignation from the board.

# Warehousing Work Gets Easier

*New tools akin to old programming technique*

BY CHRISTINE McGEEVER

DATABASE vendors are betting that an old programming style will broaden the appeal of data warehouses to less sophisticated users. But even the vendors wonder whether these naive IT operations should build data warehouses themselves.

The technique, programming automation, has been applied to other areas of data management, such as in the early days of PC-based client/server and relational databases. These rapid application development tools took over the task of hand-coding applications.

Oracle Corp.'s Warehouse Builder, released last week, is similar to rapid application development tools of yore. The Redwood Shores, Calif., company said the product will simplify and speed the development process. Jagdish Mirani, senior director of marketing for Oracle's data warehousing products, said Warehouse Builder addresses lagging data warehouse adoption cycles among companies without large information technology resources. Companies are feeling pressure to implement warehousing technology so they can make sense of the huge influx of information the Web and other tools are bringing in-house, he said.

Jason Haugland, a consultant at Synergy Consulting Services in Minneapolis, installed Warehouse Builder at a Honeywell International Inc. office in Minneapolis. He said the PL/SQL code generated by Warehouse Builder is "robust," and the product allows developers to add functionality by inserting handwritteo code.

WHAT IT MEANS

### Data Warehousing

*A* **data warehouse** *is data that's gathered from other* **databases**, *cleaned up and* **stored** *as an* **uber-source** *for the enterprise. Warehousing is essential to:*

- *E-commerce*
- *Business intelligence*
- *Enterprise resource planning*
- *Customer relationship management*
- *Sales force automation*

Companies such as Microsoft Corp., Sybase Inc. in Emeryville, Calif., and Informix Corp. in Menlo Park, Calif., are also incorporating development tools into the mix with the same target audience in mind, according to analysts.

Sybase this spring will make an announcement regarding "commoditization tools" for data warehousing, said Frank Teklitz, senior group manager at Sybase.

Informix's purchase of automation tool maker Ardent Software Inc. in Westboro, Mass., was finalized this week, and analysts say the company will use Ardent's development tools as a foundation for warehouse automation tools that carry the Informix name.

### Time Savings

The automated approach to warehousing "makes a lot of sense," said Lou Agosta, an analyst at Giga Information Group Inc. in Chicago. "There is a real time-saving value in automation" when the process is compared with the time and cost of from-scratch development in Cobol or C, he said. "Hand-coding will kill you."

"[Warehousing] tends to be a high-end proposition," Teklitz said, adding that the companies targeted in this warehouse development automation trend may be better served by a warehouse application service provider implementation.

# Motorola Claims 'Five Nines' Availability for Linux Servers

*Analysts: It's still not in Unix's league*

BY DOMINIQUE DECKMYN

Motorola Inc. last week said it could obtain 99.999% uptime for Linux-based servers. But according to analysts, this doesn't mean Linux is ready to tread in Unix's footsteps as a server for mission-critical applications.

Schaumburg, Ill.-based Motorola said its new CPX8000 servers, aimed at the telecommunications industry, will be able to obtain "five nines" availability (five minutes of downtime per year) when running its own tailored version of Linux, called High Availability Linux, or HA Linux, and specially adapted applications. However, the company said it won't actually guarantee customers such uptime.

The servers have hot-standby backup CPUs, and Motorola has ported some of its high availability software from AIX, IBM's version of Unix, to Linux. The company has also modified the Linux kernel to support hot-swap Peripheral Component Interconnect and intends to offer these modifications to the open-source community.

Motorola said it will continue to offer AIX on other servers and "will let the market decide" between the two operating systems.

"It's fairly brave to claim five nines for Linux," said Tony Iams, a senior analyst at D. H. Brown Associates Inc. in Port Chester, N.Y. But Iams also said five-nines claims have often been poorly backed up and are sometimes little more than marketing ploys.

Microsoft Corp.'s Windows 2000 product manager, Chris Ray, said Motorola's numbers refer to "small, special-purpose servers based on proprietary hardware" and thus can't be compared with Windows 2000 uptime numbers.

# Arizona Makes Voting History

BY KATHLEEN OHLSON

There may have been some bumps along the way, but the Arizona Democratic Party has blazed an online trail.

Beginning last Tuesday, voters in the Arizona presidential primary were able to go to the Internet to post their choice — Vice President Al Gore or former New Jersey Sen. Bill Bradley — and they did so with record results. According to Garden City, N.Y.-based Election.com Inc., 25,000 of Arizona's 825,000 registered Democrats had voted online as of last Thursday; online voting in the election continued through Friday.

Only 12,800 Democrats voted in the 1996 Arizona presidential primary.

But the online rush was hit with at least one technical glitch. People using 2-year-old or older versions of Netscape Navigator were unable to vote because their browsers didn't process digital certificates, said Joe Mohen, CEO of Election.com, which set up the system that uses certificate and encryption technology from VeriSign Inc. in Mountain View, Calif. Election.com and the Arizona Democratic Party both denied a published report that the glitch was related to the year 2000 problem.

Despite the browser snag, Arizona's online voting experience was a success, Mohen said. "We've raised the level of integrity and security in the voting process and brought more people into the voting process," he said.

John McCarthy, an analyst at Cambridge, Mass.-based Forrester Research Inc., said online voting faces other obstacles, such as authentication.

"It's naïveté to think online will increase voting participation. It's not how you vote, but it's how interested you [are] to vote," McCarthy said.





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# More Than 25% of Online Transactions Fail

BY CAROL SLIWA

More than half of 80 million Internet users have become online shoppers, yet surprising numbers of their online transaction attempts still fail, according to a Boston Consulting Group Inc. (BCG) survey of nearly 12,000 North American consumers.

The BCG study, which was released last week, found that 28% of consumers' purchase efforts "failed" when shoppers either couldn't find the products they wanted, couldn't complete their transactions or didn't complete their purchases to their satisfaction.

Among the 43% of all shoppers who experienced failed purchases, they most commonly complained that "pages took so long to load" that they gave up (48%) and that "the site was so confusing," they couldn't find what they wanted (45%).

BCG surveyed Internet shoppers via mail and an online questionnaire. It found that, on average, users expected a site's home page to load within 13.2 seconds, and they expected to find a product within 5.8 minutes, complete an online order form within 4.5 minutes and receive shipment within 6.4 days.

## Great Expectations

"Consumers have these expectations about what the online shopping experience is going to provide that they've taken from the off-line world, and if retailers don't meet those expectations, they're going to have problems," said BCG consultant Eric Yolles.

More than a quarter (28%) of the shoppers who have experienced failed purchase attempts said they stopped shopping at the problematic Web site, and 23% said they stopped purchasing there. Six percent of respondents said they stopping buying from that particular company's off-line store.

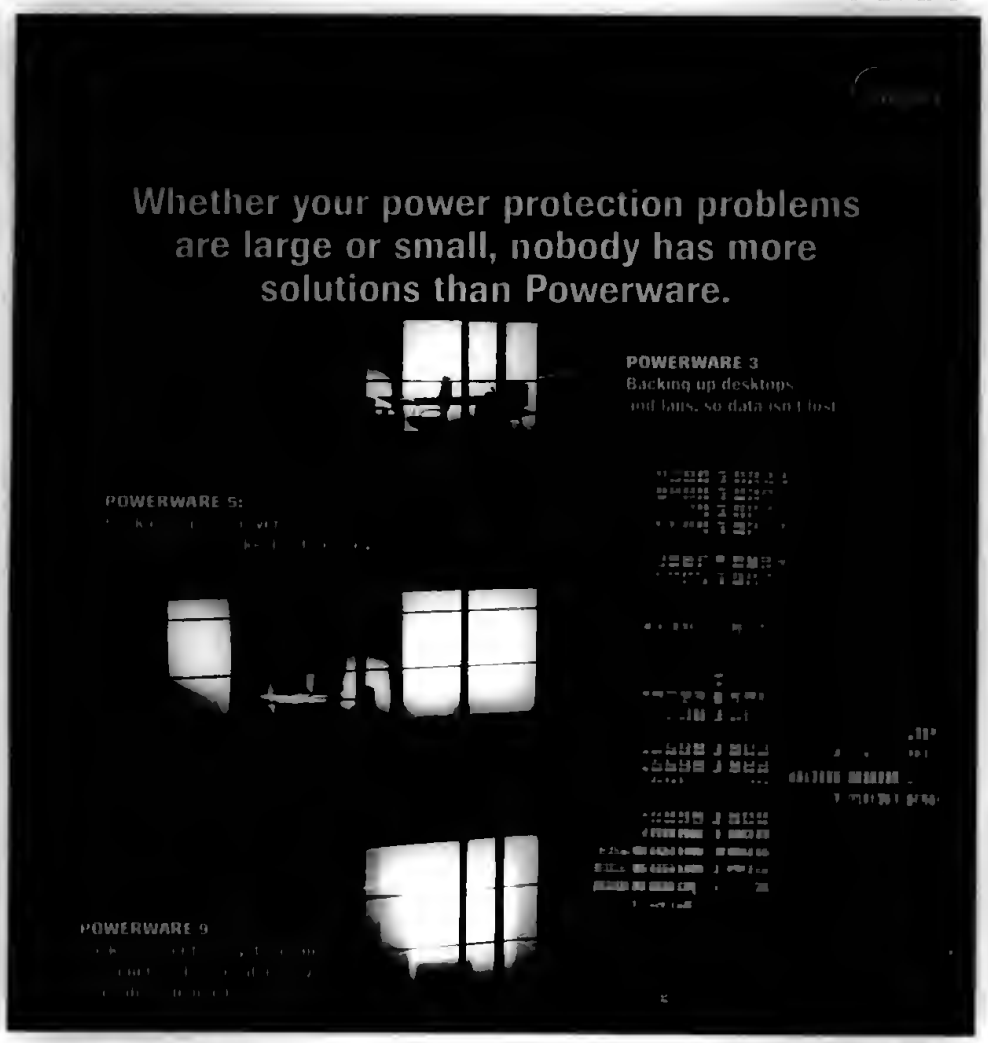
Retailers can take heart that the survey found 57% of Internet users have shopped online and 51% have purchased goods or services. The typical buyer completed 10 transactions and spent $460 online during a one-year period.

But BCG consultant David Pecaut cautioned that sites must recognize that today's average user isn't very experienced and that many Internet shoppers are amateurs.

Consumers tend to have favorite sites: The study showed that most bookmark users regularly visit fewer than 10 sites.

The BCG study suggested that retailers can hit consumers' short lists by building loyalty through value-added tools. One example: Online grocer Streamline.com Inc. in Westwood, Mass., has created incentives to retain customers.

When a customer sets up an account, Streamline installs a keypad garage-entry system at the customer's home and delivers a free Streamline box that has special shelving and a full-size refrigerator so the customer needn't be home when groceries are delivered. ◗




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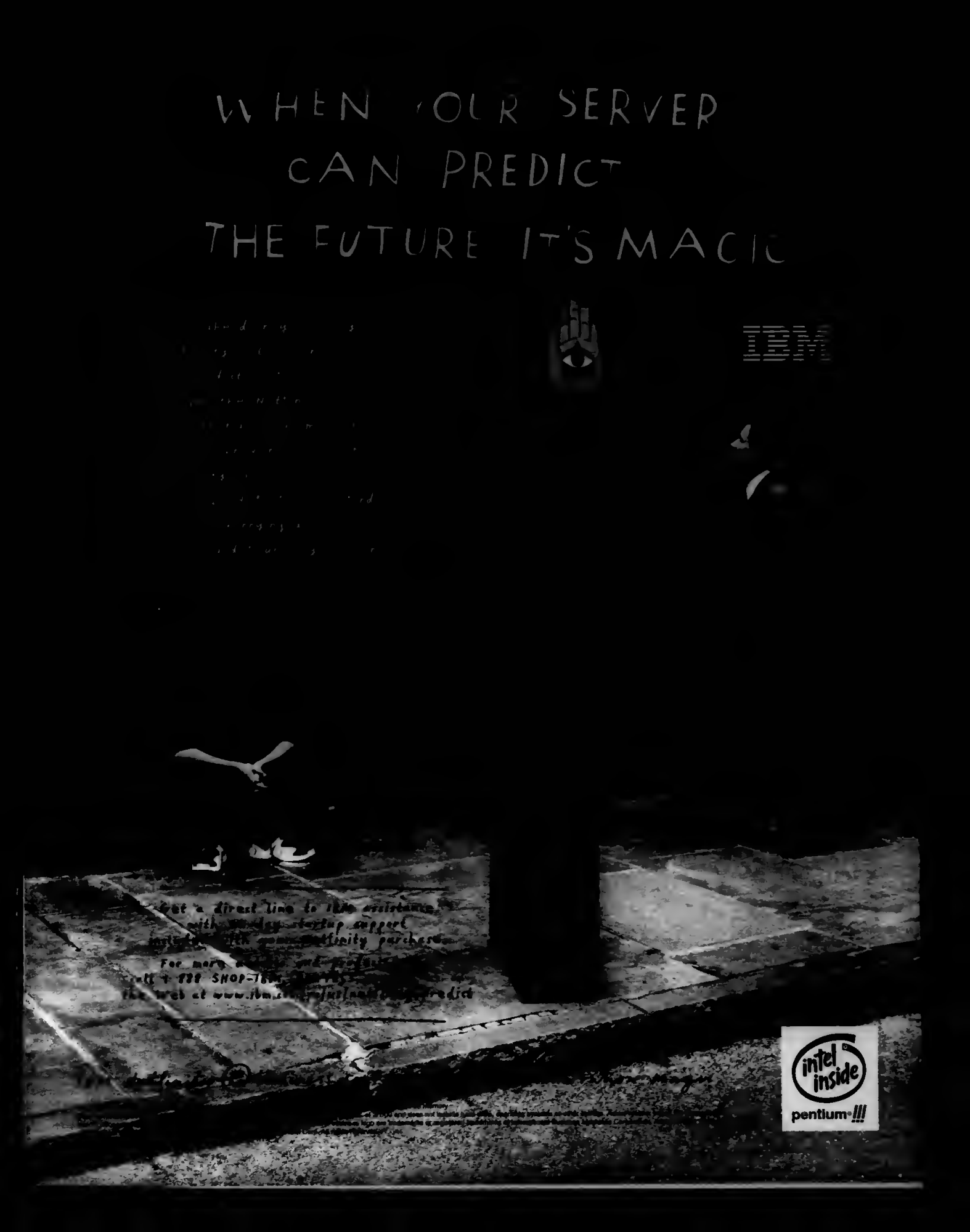
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# Bank of America Boasts 2M Online Customers

*Analysts: Penetration is just average at 7%, but services are good*

BY MARIA TROMBLY

Bank of America Corp. last week touted that some 2 million customers, or 7% of its depositors, have signed up for its online services. Analysts said that percentage is about average for large banks, but they added that Bank of America is a leader in terms of the services it offers.

The Charlotte, N.C.-based bank, the second largest in the U.S., has more than 30 million retail customers and said it is the first bank to have reached the milestone of 2 million online customers. It attributed that figure partly to a large presence in California, where consumers are technology-savvy, a bank spokesman said.

But David Stumpf, an analyst at A. G. Edwards & Sons Inc. in St. Louis, said 7% is still a small figure. And a Feb. 1 report from Donaldson, Lufkin & Jenrette Inc. (DLJ) in New York said Bank of America is squarely in the middle among large-capitalization banks when it comes to signing up online customers.

PNC Financial Services Group in Pittsburgh leads the charge, with more than 15% of its customers using online banking, the DLJ report said. PNC has fewer total online customers because it has fewer customers overall.

But Bank of America customers can check balances, pay bills, apply for loans and even invest online. As of the end of last year, only three other large-cap banks offered as wide an array of online services as Bank of America did, according to DLJ analyst Susan Roth, who issued the Feb. 1 report.

None of the mid-cap banks even came close, according to Roth's report. Online bill presentment was unavailable, online loans were rare and even bill payment was still pending at several of those banks.

Bank of America officials wouldn't say how much online banking was costing — or saving — the bank, but they did say that it required a "tremendous" initial investment to get the system up and running.

## Spurs Growth

But Senior Vice President Susan Baomann said Bank of America is already seeing online banking bear fruit.

"We're finding that customers who have online banking have more accounts with us, are more profitable and stay longer," she said.

Such growth is exactly what Stamford, Conn.-based Gartner Group Inc. analyst George Barto said he expected.

"People don't change their banking habits overnight unless there's a truly compelling reason to do so," he said. "Bank of America is a real success story. It's an indication that they're providing the service that their clients want."

# Businesses May Be Aiding Identity Theft

*Lack of coordination, detection systems impeding prevention efforts*

BY PATRICK THIBODEAU
WASHINGTON

SOMEHOW, someone got the credit-card number and Social Security number of Maureen Mitchell's husband. She first learned about the problem when a bank called her to report unusual credit-card activity.

But the problems didn't stop for the Madison, Ohio, family. A department store and car dealers were issuing credit to people claiming to be Mitchell's husband.

By the time the thieves were caught — when they applied for large loans at a number of banks — some $111,000 in fraudulent charges and loans had been made against the family.

The Mitchells' problem might have been quickly resolved if credit reporting agencies and businesses had the means to coordinate information. But some businesses had automation or training to catch suspect credit and loan applications, while others did not.

As Mitchell told her story last week before the U.S. Senate Subcommittee on Technology, Terrorism and Government Information, a disparity among businesses quickly emerged: Large banks and some credit-card companies with the tools and training to detect fraud were able to protect themselves and the Mitchells from losses.

But some auto loan companies and a department store failed to take those steps. The thieves were able to get car loans to purchase a Lincoln Navigator and Ford Expedition.

The Mitchells' problems were being reported to creditors and credit reporting agencies, but the U.S. Federal Trade Commission (FTC) said the apparent inability of these entities to readily share information about fraud led to the continued abuses.

Jodie Bernstein, the FTC's consumer protection chief, is urging creditors and credit reporting agencies to develop mechanisms for detecting fraud, she said at last week's hearing. The hearing was called to examine the effectiveness of a recently enacted federal law to combat identity theft.

Companies that have invested in protection and detection systems and training are more likely to catch problems than those that don't, said Bruce Murphy, the global protection leader for technical risk security at New York-based PricewaterhouseCoopers. Making that investment boils down to risk vs. benefits. "It's a business decision," he said.

## Crime Rates Increasing

Congress approved a law in 1998 that gave federal agencies, including the U.S. Secret Service, the right to investigate identity theft. Criminals can be sentenced up to 15 years in jail under the law. But despite the law, the FTC said, anecdotal evidence, including reports of Social Security number misuse and calls to the FTC's theft hot line, all point to an increase in this type of crime.

Some law enforcers say the Internet is contributing to the problem by making private data easily obtainable.

But Emily T. Hackett, state policy director at the Internet Alliance, a Washington-based trade group, said the Internet isn't at fault. "The credit card that you hand to a waiter in a restaurant has less security," Hackett noted. The Mitchells have never purchased anything online.

When creditors called seeking payment, Maureen Mitchell said she told them: "Too bad you didn't find the real Mr. and Mrs. Mitchell before you loaned the money." She has since logged more than 400 hours trying to clear her name and restore her family's good credit.

A suspect has been arrested, and the case is pending.

## Stolen Credit

*The number of identity thefts reported are on the rise.*

- The FTC's new identity-theft hot line is receiving 400 calls per week. You can file a complaint online: *www.consumer.gov/idtheft/.*
- The Social Security Administration received more than 39,000 reports of misuse of Social Security numbers in 1999.
- The Los Angeles Police Department solved only 1% of 3,000 identity-theft cases last year.

SOURCES: FEDERAL TRADE COMMISSION AND LOS ANGELES POLICE DEPARTMENT

# Internet-Based Foreign Exchange Service Debuts

BY MARIA TROMBLY

Starting today, international customers of London-based Barclays PLC will be able to trade currencies online, and foreign customers of San Francisco-based discount broker The Charles Schwab Corp. will soon be able to as well.

The service won't be available to U.S. customers in the immediate future; rather, it will be rolled out in stages in countries where Schwab has affiliates.

"We're targeting Canada as our first market," said Schwab spokesman Michael Durand. "The reason we're looking at international markets first is that's where we see the most immediate need for this capability," he said.

Most of the interest in foreign trading is from foreign investors who want to put their money into U.S. stock markets, said Dan Burke, an analyst at Gomez Advisors Inc. in Lincoln, Mass.

But foreign investors using Schwab's online brokerage services through the company's Charles Schwab & Co. subsidiary will be able to buy and sell securities in different foreign markets without needing to separately negotiate foreign exchange contracts.

The Internet-based currency trading system was developed at Barclays and is already in live demonstration, said Barclays project manager Andy Rowland. It took four months to develop — a significant advance over the typical nine- to 12-month development period — and is Java- and XML-based.

Based on Barclays' positive experience, the entire financial industry will soon be moving to the Java platform, predicted Rowland. "It's very fast, it's easy to maintain, it's rapid to develop, it's very thin and it doesn't require any software on the desktop, so it can be distributed [in] real time on the Internet."


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# BRIEFS

## Banker Launches Online Finance Unit

**J. P. Morgan & Co. announced a new electronic-finance unit last week called LabMorgan. The unit will combine the capabilities of a classic incubator and early-stage merchant bank with J. P. Morgan's client reach. LabMorgan is the first of several planned online initiatives expected this year. The New York-based company said it plans to commit up to $1 billion to electronic business this year.**

## Sony Plans to Start Internet Bank

**Tokyo-based Sony Corp. will launch an Internet bank next year targeted at individual consumers. A company official told Reuters last week that Sony hopes to attract $9.3 billion in deposits within five years. Sony already has online insurance and brokerage units.**

## Baan Works to Stay On Blue-Chip Index

**Baan Co. has reached agreements to raise $41 million in equity funding, which it needs to avoid being dropped from the Amsterdam stock exchange's blue-chip index. After six consecutive quarters of losses, the Putten, Netherlands-based software vendor had been told by the exchange to boost its shareholder equity or face a "special listing" of its stock. To comply, Baan is trading new shares for notes held by unidentified institutional investors.**

## Memory Problems for Some Dell Laptops

**Dell Computer Corp. in Round Rock, Texas, said 200,000 to 400,000 laptop computers sold last year between Feb. 1 and Nov. 30 may have flawed memory modules that can cause data to become lost or corrupted. The problem crops up only when affected notebooks are brought out of sleep or suspend mode and the system hangs or shows a Windows blue-screen error. The problem can be fixed with a work-around in the BIOS or with a replacement of the memory module.**

# Coors Moves Branded Merchandise Online

*Offers 1 shopping basket for multiple vendors*

BY JAMES COPE

When Adolph Coors Co. in Golden, Colo., rolls out its merchandise catalog to beer distributors via an extranet this week, it will look just like a regular merchandise store on the front end. But on the back end, pieces of the orders will stream from a shopper's cart to some 60 vendors, each responsible for providing specific products, such as T-shirts or hats.

Routing the orders to separate vendors for drop shipment to customers is handled by a bridging technology developed by Digital River Inc. The Minneapolis-based firm also hosts Coors' new catalog site.

Dave Reid, manager of CoorsNet, the network that links distributors to the corporation, said Coors chose to outsource the site because Digital River's business-to-business order system was ready to go, and it simply didn't make sense to reinvent it.

Coors had been using an expensive printed catalog to sell branded merchandise to distributors, Reid said.

"Today, if someone has to order three hats, three shirts and a golf bag, they probably have to make three phone calls. With the online catalog, they can put them in one shopping basket. Digital River splits them out," Reid said.

Matt Voda, senior director of marketing at Digital River, said the company's proprietary licensed vendor system treats each of the Coors merchandise vendors as a single store and then displays all the vendors as a collective on the catalog site.

"There's one shopping cart, one set of order management tools, one shipping engine and one taxation engine," Voda said. The shipping engine can be configured to ship from multiple warehouses or different warehouses for the same vendor to reduce shipping times and cost, Voda added.

Coors' decision to outsource follows a trend that Ted Schadler, group director for business-to-business strategy at Forrester Research Inc. in Cambridge, Mass., calls exIT, or external IT. "It's where the technology is external and can be shared [by different companies]," Schadler said.

For Coors, selling commercial merchandise makes good business sense. It reinforces the Coors name, Reid said, and could turn a break-even business unit into a better profit center.

"It does a little better than break even today. It has the potential [with the online catalog] of making much more income," he said.

Coors will offer merchandise both online and through the printed catalog throughout the year, Reid said. But he said he plans to cut the usage of the printed piece. "Hopefully, we'll be able to cut the number [of catalogs printed] in half next year," he said.

Reid said he anticipates that Coors will increase merchandise sales through the online catalog by adding promotions on the fly — an approach that isn't cost-effective in print.

### Coors Online Catalog Strategy

- Maintain primary distributor network (CoorsNet) in-house
- Outsource catalog site to Digital River but link access through CoorsNet
- Phase in online ordering and decrease print catalog over time to lower costs
- Increase online catalog visits and revenue through specials
- Generate more profit by lowering print expenses while increasing online order revenue

# IBM, Ariba, i2 Form E-Commerce Alliance

*May speed creation of marketplaces*

BY DEWAYNE LEHMAN

If IBM, Ariba Inc. and i2 Technologies Inc. can work together, their new technology alliance may help companies set up Web marketplaces faster and easier, according to industry analysts.

The three companies announced last week that they will share their software and technologies to offer a complete package of business-to-business e-commerce services.

Current customers of the three companies said the alliance is promising.

Tim Lambeth, vice president of global processes at Greensboro, N.C.-based VF Corp., said the shared resources of the companies will allow the apparel manufacturer to improve its business-to-business e-commerce processes faster.



VF CORP.'S TIM LAMBETH says the company hopes to use the alliance to help take $200 million out of its cost structure

"We have targeted over $200 million to take out of our cost structure over the next three years. With this alliance, we really believe we can speed up that process," he said.

"This is a big step forward in the development of e-commerce," said Ed Gilligan, president of corporate services at American Express Co. in New York, which is already working with Mountain View, Calif.-based Ariba to develop e-commerce payment tools.

But analysts questioned whether the three vendors can work together in harmony.

It "could accelerate the time to market for some of these exchanges," said analyst Vernon Keenan, founder of Keenan Vision Inc. in San Francisco. "[But] a lot of times, these relationships don't blossom."

Adrian Gonzalez, an analyst at ARC Advisory Group Inc. in Dedham, Mass., said the alliance holds promise because of the strengths of the three companies. Ariba's procurement expertise, i2's networking and logistics capabilities and IBM's hosting, hardware and other technologies make a good fit, he said.

"You've got three big B-to-B hitters here offering different things to the mix," Gonzalez said. "[But] if you get three big heads in a small room, the chances of bumping and bruising heads increases."

The alliance will integrate Irving, Texas-based i2's TradeMatrix marketplace software and Ariba's business-to-business e-commerce software with IBM's WebSphere Commerce Suite software and other technologies. IBM will also use its IBM Global Services professional services unit to support and sell the new services.

IBM also said it will use the technologies to build its own worldwide procurement marketplace to handle purchases from its 13,000 suppliers.

AT A GLANCE

### IBM/i2/Ariba Agreement

- Integrates i2's TradeMatrix marketplace system, Ariba's ORMS business-to-business e-commerce platform and IBM's WebSphere Commerce Suite
- IBM will use it for most of its $45 billion annual procurement from approximately 13,000 suppliers
- IBM will train 5,000 sales representatives and 500 specialists on the new system



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*Continued from page 1*

## Hitachi

in an IBM mainframe at a lower price, Balazs said. But he said he would like to bid for Hitachi systems in the future. "My concern is that IBM will be less aggressive going forward," if Hitachi's presence fades, he said.

Worrall said the company's decision to switch gears was a matter of economics. "With the market price erosion we have seen in the last 12 to 18 months, we were at a point where profitability was being squeezed to an unacceptable level," he said.

Instead, Hitachi will focus on delivering by the end of next year a class of high-end enterprise servers, code-named Hercules, that will be based on Intel Corp. hardware and support multiple operating systems, such as OS/390, Unix and Windows NT, Worrall said.

Hitachi held a 21% market share as recently as 1997 but dropped back to 14% in 1998 and did even worse last year in the field that also includes IBM and Amdahl Corp. in Sunnyvale, Calif., according to Stamford, Conn.-based Meta Group Inc.

This decline occurred at a time when prices for mainframe processing power were dropping — from $100,000 per MIPS in the early 1990s to $2,270 per MIPS for an IBM mainframe at the start of the year, Meta Group estimated.

A recent Meta report cited the following factors as having "killed Hitachi's profitability": a 50% MIPS pricing drop, IBM's competitive Generation 5 and Generation 6 S/390 mainframes, users instituting Y2k system freezes in the second half of 1999 and Hitachi losing access to future IBM S/390 CMOS processors.

The upshot, according to Meta: Users can expect the pace of price reductions to slow down this year.

IBM wouldn't speculate on the market effects created by the Hitachi move, a spokeswoman said.

Hitachi's problems may have also stemmed from its decision to base systems such as its Triniums and Skylines on hybrid processors that combine the low power consumption and floor-space savings of air-cooled CMOS technology with the speed of the older, water-cooled emitter-coupled logic designs.

The technology let Hitachi deliver the industry's most powerful mainframes, but they were also much more expensive to build than those based on pure CMOS chips from IBM and Amdahl, said David Floyer, an analyst at ITCentrix Inc. in Mountain View, Calif.

"I'm disappointed," said James Enwall, manager of technical support at Van Waters & Rogers Inc., a Seattle-based chemicals distributor and Hitachi user. "Hitachi gave us an alternative to IBM," Enwall said, adding that Hitachi systems tended to be less costly than IBM's.

"I would hate to see Hitachi drop out of the market because then it would mean going back to a one-vendor market. ... I don't see Amdahl as much of a rival" to IBM, said Paul Hernandez, a director of computing services at Wright State University in Dayton, Ohio.

"I think they were hurting a lot before this. ... It was just pride that kept them going so far," Floyer said. "It's a sad day for the S/390. It means less choice for users, less innovation and ultimately a faster migration to Unix."

**Market Growth**

*Processor market share*

| | 1997 | 1998 | 1999 | 2000* |
|---|---|---|---|---|
| Amdahl | 6% | 10% | 9% | 11% |
| Hitachi | 21% | 14% | 12% | 4% |
| IBM | 73% | 76% | 79% | 85% |

*Projected

SOURCE: META GROUP INC., STAMFORD, CONN.

*Continued from page 1*

## Oxford

members in New York, New Jersey and Connecticut. As its membership grew, Oxford's computer network couldn't handle the load, and its software couldn't process claims accurately or quickly enough. That led to dissatisfied physicians claiming that Oxford owed them millions of dollars [News, Nov. 3, 1997].

But after spending $5 million and more than a year fixing its information technology operations, Oxford reduced the average time to process a claim from a couple of months to seven days, company executives said.

To address one major issue, Oxford developed applications that allowed its business units to track the status of insurance claims. "That was one of the problems we faced in '97. We had a huge backlog of claims," said company CIO Arthur Gonzalez.

### Living in a Glass House

Now, each business unit files a weekly report on claims processing into a common reporting tool. The data is available to the entire management team, said Charles Schneider, Oxford's president and CEO.

"There's transparency in what's happening in every department. [We] all live in glass houses [now]," Schneider said.

Oxford also saves money by processing 50% of its claims electronically, mostly through private networks. By year's end, Oxford plans to process 70% of its 1.4 million monthly claims electronically, Schneider said.

On average, electronic filing costs 35 cents per transaction, compared with $2 to $3 for a paper-based claim.



**CIO GONZALEZ: Status tracking apps helped get rid of backlogs**

Electronic claims processing not only cuts costs but can also shave months off the claims-processing cycle, said Mark Anderson, an analyst at Stamford, Conn.-based Meta Group Inc. and a former hospital CIO.

Robert Booz, a vice president at health care consultancy First Consulting Group Inc. in Long Beach, Calif., said Oxford also simplified its benefits pricing structure to make claims processing easier. Before, Oxford's complicated pricing made claims processing difficult to automate, said Booz, a former chief operating officer at Oxford.

Other factors, including worker layoffs and the sale of health maintenance organizations in several states, also contributed to Oxford's turnaround.

But Melissa Gannon, an analyst at Weiss Ratings Inc. in Tampa, Fla., said the IT upgrades played a key rolet.

"They were so far behind in making their claims payments to providers, and [there was] such a lack of information to make good decisinns regarding claims reserves," she said. "Unless they were able to clean that up, they couldn't have returned to profitability."

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# Software Snafu Could Put Bank Merger in Jeopardy

*Analysts: Lowered earnings ominous*

BY DEWAYNE LEHMAN

A Salt Lake City bank's problems with a software upgrade contributed to lower earnings this year, which in turn, according to one analyst, may threaten its planned merger with another bank.

First Security Corp.'s $40 billion deal with Zions Bancorporation will create the second-largest bank in the Western U.S. if shareholders approve it March 22.

But earlier this mooth, First Security said its revenue and income projections for tbe first quarter will be down 8% and 25%, respeetively, in part because of a systems upgrade that appears to have caused more problems than it solved.

That announcement may threaten its planned merger with Zions, also based in Salt Lake City, said analyst James Bradshaw at Great Falls, Mont.-based D. A. Davidsoo & Co.

In a statement, First Security officials blamed tbe poor numbers on a decline in mortgage business as a result of rising interest rates and a botched systems upgrade that increased chargebacks for indirect auto and consumer loans. First Security officials declined requests for interviews.

The software upgrade, installed io October, was intended to simplify the collection process by flagging the company's most outstanding loans and moving them to the top of the list for collection efforts, according to Bradshaw.

But the software apparently worked the opposite way, sinking the worst loans to the bottom of the list for collection, thereby driving up chargebacks, Bradshaw said.

The problem has been fixed, and company officials expect the chargebacks to level off this month, but not before they take a their toll. According to Bradshaw, nearly one quarter of the loss in revenue can he attributed to the bad software.

In press statements, officials at both banks have reaffirmed their commitmeot to complete the merger, but shareholders may have their doubts. "The market is telling us that the merger is less likely to happen today than it was" before the announcement, Bradshaw said.

Bill Bradway, an analyst at Meridien Research Inc. in Newton, Mass., said he thinks that the merger will be approved but that Zions' shareholders will demand a lower price.

Bradway speculated that the software problem may have occurred in the "race to Y2k," noting, "They might, in fact, have locked in an upgrade ... and not necessarily had all the time they needed to test all the operational aspects."

A Zions official declined to comment.

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# Business-to-Business Billing No Easy Task

## *Gartner says it requires re-engineering*

BY JAIKUMAR VIJAYAN
NEW YORK

BUSINESS-to-business Internet bill-payment systems are more expensive and more difficult to implement than consumer billing systems, a Gartner Group Inc. analyst said at an e-commerce conference here earlier this month.

The problem is that instead of dealing with individuals, such Internet billing involves interaction with varied kinds of payment systems and business processes.

The upshot is that implementing business-to-business online billing typically means having to re-engineer business processes, said Avivah Litan, the analyst at Stamford, Conn.-based Gartner who presented a report on this topic at the conference.

"There's a long way to go" before companies can take full advantage of Internet payment options, said Nina Vellayan, director of product development at the Student Loan Management Association (Sallie Mae) in Reston, Va.

Sallie Mae has already implemented a new billing system that gives more than 5 million student-loan borrowers the ability to pay their bills over the Internet. The system has worked so well that Sallie Mae is now trying to get more than 3,500 colleges to use its billing system to let students pay college-related bills over the Web.

But Vellayan said it will take more than a year before Sallie Mae is able to conduct similar transactions in a business-to-business setting.

Business-to-business billing is more difficult because business bills are often much larger than consumer bills — sometimes running into tens of pages long — and they are sent to accounts payable systems instead of individuals, Vellayan said.

### Costs Underestimated

In addition, companies that outsource Internet billing systems to avoid implementation expenses often underestimate the cost, said Tony Sidiropoulos, director of marketing at Billserv.com Inc., an electronic-bill presentment and payment service bureau in San Antonio.

The company offers a range of consumer billing services to customers such as Sallie Mae and Chevron Corp. in San Francisco, but it hasn't begun pursuing the business market.

"The tendency [in business-to-business] is for people to look at the consumer market and say, 'If you can charge them 40 cents [per] transaction, why can't you do the same for us?' " Sidiropoulos said.

The fact that online billing touches upon many different aspects of a business — such as payables, treasury, controllers and audit — will also require the re-engineering of a variety of business processes, the Gartner report said. ◗

### Business-to-Business Payments

**12 billion business bills are generated in the U.S. each year.**

**14% of bills are paid electronically.**

**Of those 14%, 70% are paid via U.S Automated Clearing House systems; 17% are paid via financial electronic-data exchange.**

**9% of all electronic payments are via credit cards.**

Source: Gartner Group

## PNC, Perot Launch E-Billing Venture

PNC Bank Corp. and Perot Systems Corp. last week announced a 50/50 joint venture that will allow businesses to issue bills and pay them online.

PNC said the venture, known as BillingZone, will be the first electronic service to target the business market exclusively.

According to a joint statement by Pittsburgh-based PNC and Dallas-based Perot Systems, BillingZone will offer an electronic-bill presentment and payment service to businesses.

Forrester Research Inc. in Cambridge, Mass., predicts that bills presented and paid online will grow from $900 million currently to $73.2 billion in 2003.

Time0, a business unit of Perot, is building BillingZone's digital marketplace platform, scheduled to be released this summer. BillingZone builds on an initiative that the bank and Xerox Corp. launched two years ago. – *Linda Rosencrance*

# Xerox, Sun and iPlanet Team Up to Ease E-Billing

## *Package aimed at health care, finance*

BY MARIA TROMBLY

Xerox Corp., Sun Microsystems Inc. and Mountain View, Calif.-based iPlanet E-Commerce Solutions recently joined forces to create a package for financial service and health care organizations to send bills and statements electronically.

A single account team from Rochester, N.Y.-based Xerox will market, sell, install and service the product, which includes Sun's Solaris servers and iPlanet's e-commerce software. The core of the package is iPlanet BillerXpert.

Using this bundle of hardware, software and services, companies can place large volumes of customer bills or statements on their Web sites or deliver them as e-mail.

A Sun official noted that companies can bring the online billing capability in-house or use an outsourcer.

By adding servers and e-commerce software to its high-volume billing service, Xerox will be one of the few companies that addresses all five parts of the online billing process (see chart).

Michael Killen, chairman of Palo Alto, Calif.-based Killen & Associates Inc., said that about 70 companies offer to handle some of these steps for a biller but that only a handful, such as IBM and eDocs Inc., can handle everything involved.

Killen said the market for online billing service providers is huge: Today, companies issue approximately 61 billion bills per year worldwide. He predicted that this year, companies will spend about $7 billion on software, equipment and services for online billing.

Currently, electronic statements are usually duplicates of paper statements still being sent to customers — a convenience but not a cost-cutting measure for billers.

But Philip Pilibosian, a Xerox senior vice president, said that within 12 to 18 months, paper statements might be replaced completely by Web-based or e-mail statements.

The Xerox Internet Presentment Solution is available now. Pricing starts at $250,000 but varies by complexity. ◗

AT A GLANCE

### E-Billing

*Electronic billing and payment involves five steps:*

- Data is extracted from legacy files.
- Electronic bill is created and transmitted to the customer.
- Bill is consolidated. The customer can now view his account history.
- Customer completes payment process.
- Electronic bill is archived.

SOURCE: MICHAEL KILLEN & ASSOCIATES INC., PALO ALTO, CALIF.

# Bank One Debuts Cash By E-Mail

BY KATHLEEN OHLSON

In a move aimed at helping people send and receive money faster, Bank One Corp. last week introduced eMoneyMail, a person-to-person e-mail payment system.

The Chicago-based bank said customers in the U.S. can use the service to send up to $500 in cash at one time. Customers don't need to have a Bank One account to participate in eMoneyMail. An e-mail address and a checking account with a U.S. bank or Visa credit card will suffice, Bank One said.

Robin Yocum, a Bank One spokesman, said eMoneyMail is currently aimed at consumers but will be expanded to corporations. For example, companies will be able to use the service to issue rebates.

Although the online money transfer service will use 128-bit encryption security, Bank One still faces security concerns and challenges in moving consumers to an electronic-payment system, said David Potterton, an analyst at Newton, Mass.-based Meridien Research Inc.

"Historically, these programs haven't taken off because most consumers in the U.S. are tied to credit cards" for convenience, Potterton said. They haven't had a compelling reason to switch from paper to electronic payments.

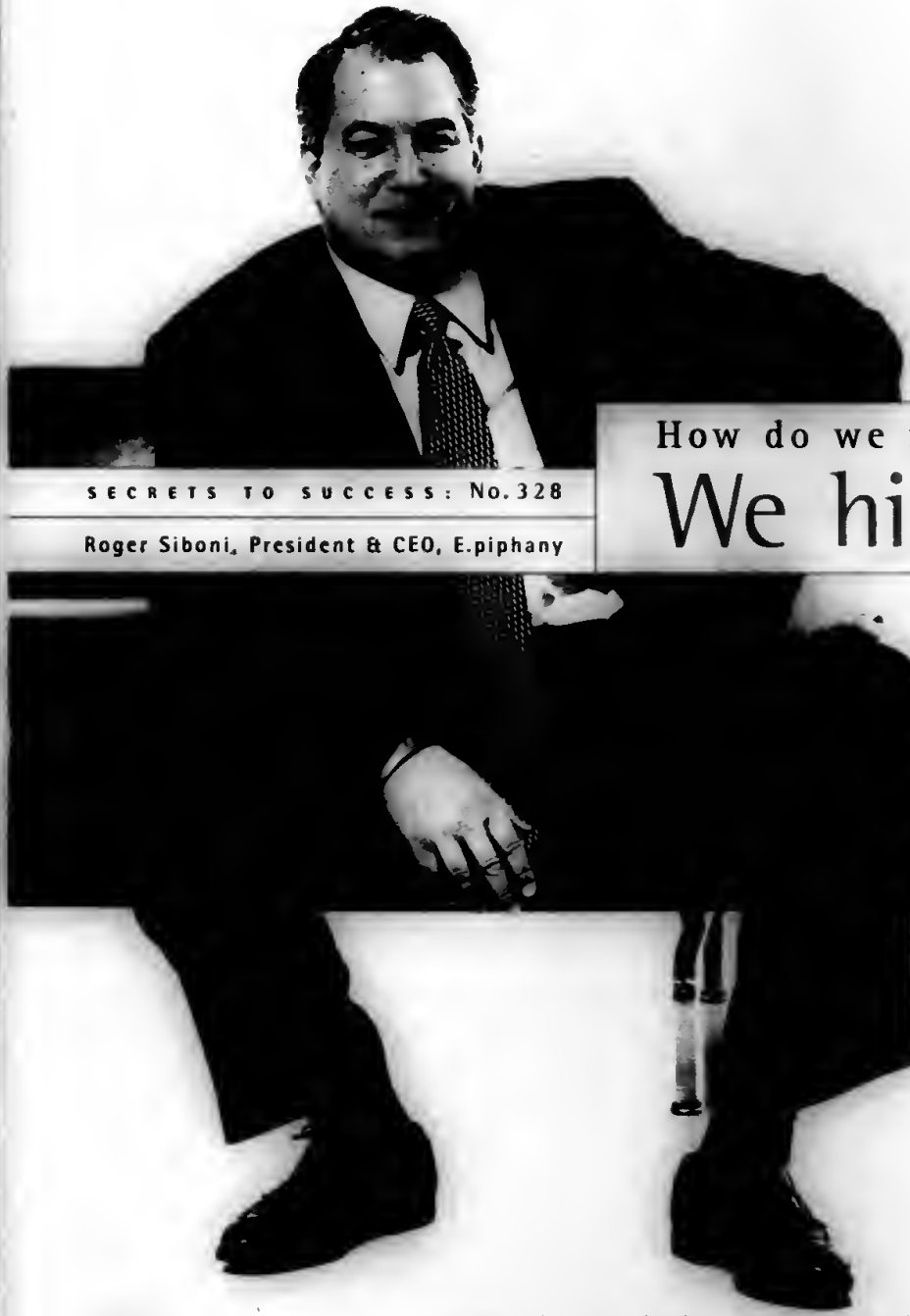
But eMoneyMail may work because money can be sent to debit cards, which are growing by 20% in overall usage, Potterton said.

There is a $1 charge to send money and a $1 fee charged to paper check recipients.

Bank One is the latest company to offer an online payment service. PayPal.com and X.com, which is acquiring PayPal.com, both provide online e-mail payment systems — but at no charge. ◗

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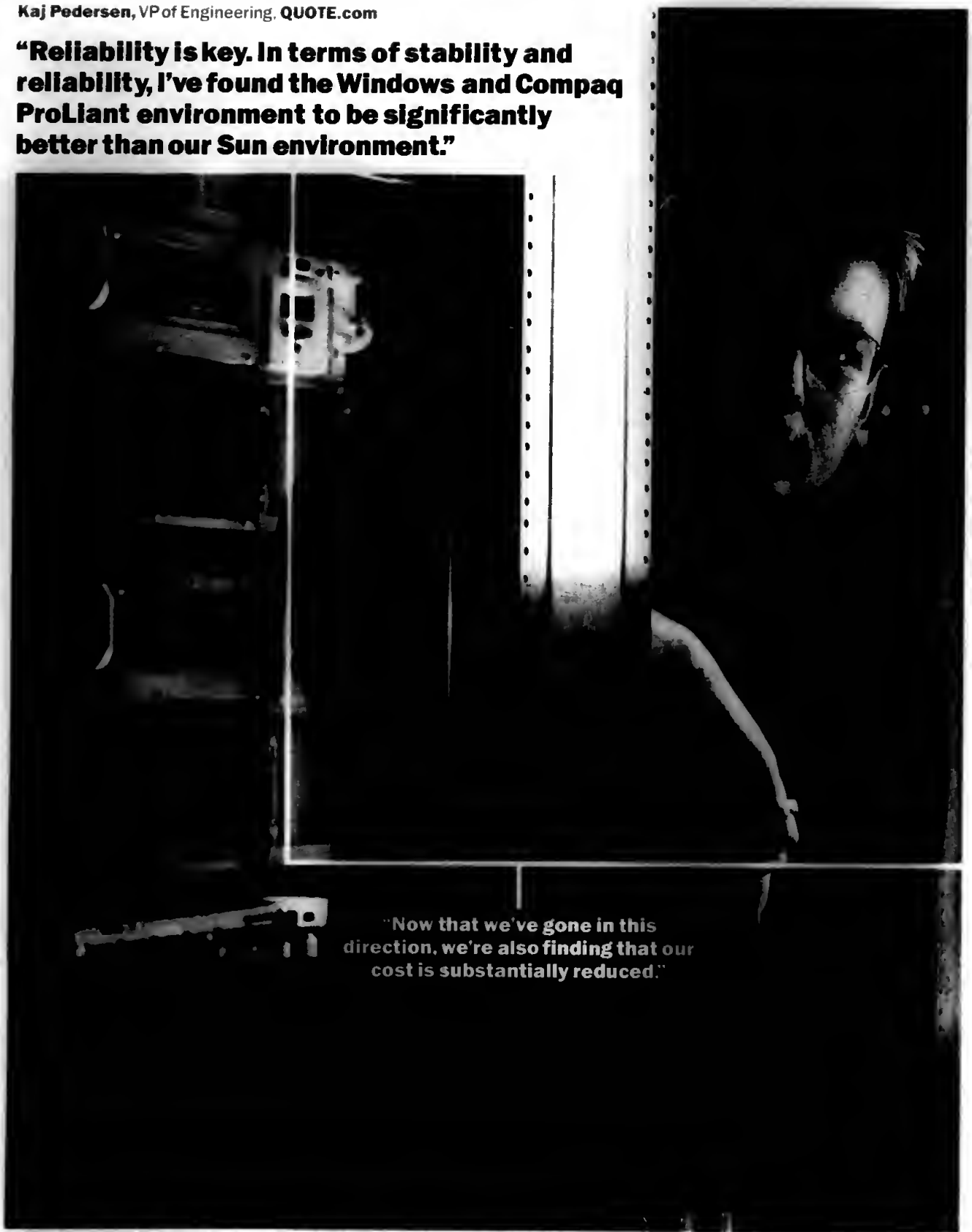
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# Big Three Exchange May Not Be Sole Purchase Network

*Suppliers plan to use trade exchange, but won't abandon their own online initiatives*

BY LEE COPELAND

A BATTLE between Ford and General Motors late last month to dominate online purchasing in the auto industry morphed into a collaboration among the Big Three automakers, which joined forces to form a business-to-business Web-based trade exchange.

While industry watchers applauded the move, a sampling of parts makers and other players in the multibillion-dollar supply chain said they will continue pursuing their own online procurement projects as they look to participate with Ford Motor Co., General Motors Corp. and DaimlerChrysler AG.

Analysts lauded the move to consolidate trade systems and trim the fat from the Big Three's combined annual procurement bill of $240 billion. Analysts said the automakers — GM in Detroit, Ford in Dearborn, Mich., and DaimlerChrysler's Chrysler division in Auburn Hills, Mich. — are notoriously inefficient manufacturers. By reducing procurement costs by an estimated 5% to 10%, they could save billions.

"The car assembly business of U.S. automakers is not doing well in terms of profitability and [is] losing market share," said analyst Hiro Mori at Automotive Consulting Group Inc. in Ann Arbor, Mich. "Their profits are coming from auto loans, financial services and those types of things. There are billions just sitting on the dealer parking lot or [being] wasted processing orders for supplies."

Yet getting auto suppliers and subsuppliers, who themselves annually purchase between $250 billion and $500 billion in supplies, to use the Big Three's exchange as their purchasing network, is not a given. A number of these suppliers said they will participate in the Big Three's exchange but that they have no plans to scrap their own online sales and procurement initiatives.

## Ready, Set, Trade

Automotive axle, driveshaft and piston ring maker Dana Corp. plans to trade on the exchange. The Toledo, Ohio-based manufacturer conducted more than $3 billion of its business, or almost one quarter of its reported $13 billion in revenue last year, with Ford and DaimlerChrysler. Still, Dana intends to continue developing its own procurement exchange with software from Ariba Inc. in Mountain View, Calif.

"If a customer asks us to bid on their exchange, we'll work with them," said Gary Corrigan, vice president of corporate communications at Dana. He said Dana, which supplies machinery to the construction, industrial and agricultural sectors and to other automakers, does business that may fall outside the scope of the Big Three's trade exchange. Dana also wants to cut procurement transaction costs with its own 86,000 suppliers.

"There are a lot of manufacturers out there that we make products for. If a product is available and the price is superior, we will go [to the Big Three] for another customer. But we have a lot of highly engineered components that would not show up on the exchange," Corrigan said.

Business-to-business office product supplier Boise Cascade Office Products Corp. in Itasca, Ill., has had an e-commerce site for conducting business with its customers and suppliers since 1997. "We are happy to try to provide access to our products to our customers in whatever system they opt to use," said Terry Kallen, manager of emerging technologies. "We have developed an in-house electronic cataloging system that does not make the process totally painless, but it makes it doable so that we can be responsive in different formats."

Kallen said her department fields four to five requests each week from customers and e-commerce sites seeking Boise Cascade's participation in a new online system. "We're not out shopping for these opportunities. They're coming to us fast and furious."

"The Tier 1 suppliers have an interest in pursuing separate exchanges that are supply-chain-facing," said Kevin Prouty, senior analyst at AMR Research Inc. in Boston. "My advice to them is: If you can get it done in the next six months, do it. It will pay for itself. Most of them could not wait for the automotive OEMs to make a decision and went ahead and did it."

## Automating Procurement

Other suppliers without an electronic network of their own, such as Robert Bosh Corp. in Broadview, Ill., and Ball Machinery Sales Ltd. in Guelph, Ontario, said the network would help cut costs by automating the procurement process with Ford, General Motors and DaimlerChrysler.

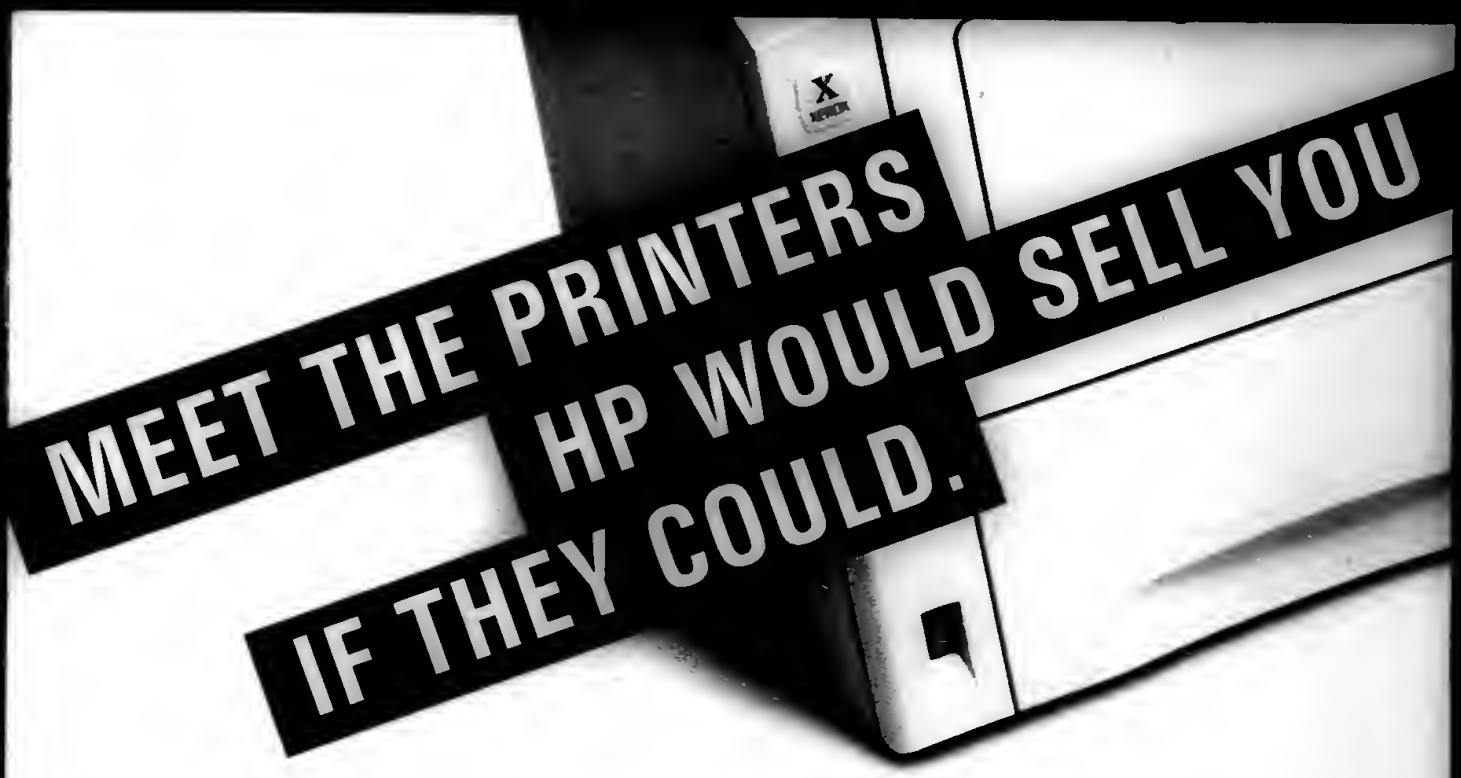
Gary Ball, president of Ball Machinery Sales, deals in used equipment. He bought $400,000 in stamping equipment through GM's TradeXchange in December. "I'll be able to deal with all three under one network," Ball said. "Now, I spend $3 million at Chrysler, then spend a few million at GM the next day. It's demanding on my cash flow."

GM plans to flex its muscle with automakers such as Sweden's Saab Automobile AB and Isuzu Motors Ltd. in Tokyo, in which it holds equity stakes. Ford officials said partner Mazda Motor Corp. in Hiroshima, Japan, would participate. But DaimlerChrysler officials were reluctant to make a commitment on behalf of subsidiary Freightliner Corp. in Portland, Ore.

Peter Weiss, an electronic-procurement project director at DaimlerChrysler, said, "This new company will have to earn the business, and if it's not good enough, the business will not go there."

## Big Three Automakers Race to Create Online Trade Networks

| DATE | EVENT | STRATEGY | ANALYST VIEW |
|---|---|---|---|
| 2/25/00 | Big Three Automakers agree to form a separate company to create and manage an online trade exchange for industry, including original equipment manufacturers and dealers. | An independent exchange will drive down costs and reduce the number of exchanges that suppliers must participate in | "The industry is better served by a neutral marketplace than by competing collections of parochially controlled marketplaces." - Bruce Temkin, Forrester Research Inc. |
| 2/09/00 | Ford and Oracle open *www.auto-xchange* and announce the site's first automotive parts auction worth $75 million. The two companies bring in Cisco Systems Inc. as an equity partner. | The trade network will focus on Ford, its suppliers and other automakers. Cisco joins to supply connectivity quick-start kits to dealers and suppliers. | "The competitive advantage will arise when auto manufacturers use these exchanges for more in-depth communication of manufacturing information and dynamic demand forecasting and use them as an enabler of a 10- to 15-day build-to-order model." - Michael Bruynesteyn, Prudential Securities Inc. |
| 1/19/00 | GM and Commerce One announce that i2 Technologies Inc. will provide supply-chain management services and software to TradeXchange by the end of June. | By using i2 software, GM hopes to trim assembly and freight costs of its supplies. | |
| 12/20/99 | GM opens TradeXchange procurement network with Commerce One at *www.gmsupplypower.com* and completes a first auction of $400,000 in stamping equipment. | Getting vast supplier network online will cut purchase order processing costs from $100 to $10 on average. GM courts Toyota Motor Corp. as a participant in the trade exchange to no avail. | "The trade networks should cut costs and boost buying power of automakers and their suppliers." - Steve Cole, Forrester Research |
| 12/20/99 | DaimlerChrysler AG appears to be waiting on the sidelines as it evaluates creating its own trade exchange but refuses to disclose details. | "We're not strong believers in online auctions. There is a place for online auctions and catalog buying, but we're more interested in developing long-term relationships with our suppliers." - Jeff Trimmer, director of operations and strategy at DaimlerChrysler | "They're very good at keeping secrets. They announce when they move, not when they start or have the intent." - Jim Hall, AutoPacific Inc. |




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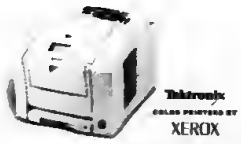
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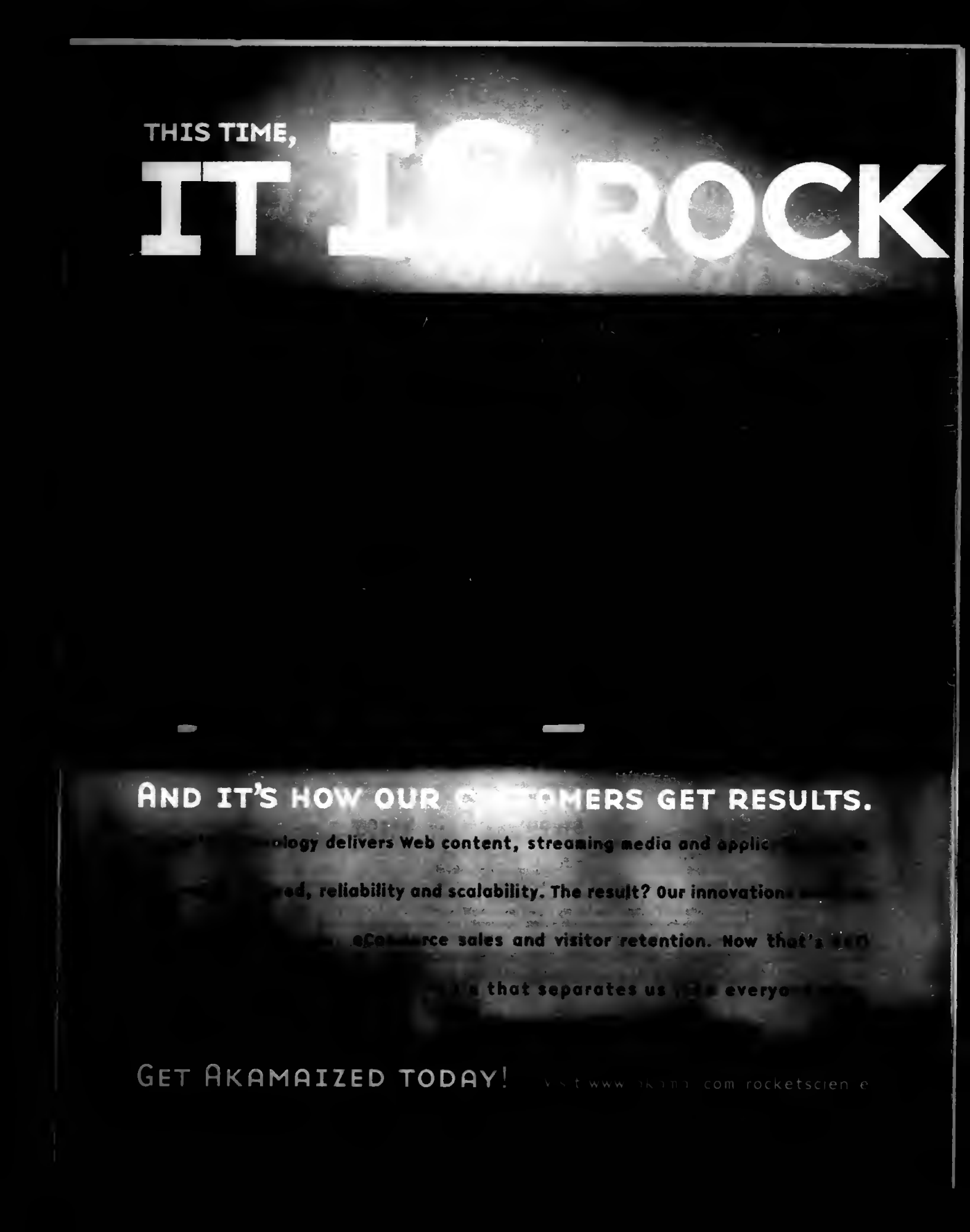
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# ET SCIENCE.

# Businesses Weigh Pros and Cons of Web Marketplaces

*Analysts are enthusiastic about potential benefits, but few companies have embraced the online market*

BY JULIA KING
SCOTTSDALE, ARIZ.

COMPANIES should immediately quit building their own e-commerce applications and instead take up with one or more of the hundreds of business-to-business marketplaces springing up on the Internet.

That's what analysts preached at a recent forum here sponsored by Cambridge, Mass.-based Forrester Research Inc., but few in the audience of 500 or so were ready to convert.

The Forrester analysts said moving to Web marketplaces would greatly cut costs, give companies faster and nearly limitless access to new customers and suppliers, and position them at the forefront of a booming electronic-business market that will reach $2.7 trillion by 2004, by Forrester's estimate.

"Few people here may be saying it, but e-marketplaces are still a lot like the emperor without clothes. They may not be naked, but they're definitely in their boxer shorts," said Mark Chellis, vice president of online business and marketing at Wilson Supply Co., a $3.5 billion oil industry equipment and services company in Houston.

Like several other users, Chellis confessed to being frustrated by "all the hype and glory" around the new digital marketplaces.

For example, at least 10 such pure-play Internet marketplaces have been launched in the oil industry since last Thanksgiving, yet none of those that have approached Chellis had any way to fulfill orders placed online, he said.

In contrast, Wilson has more than 200 distribution locations to serve its 5,000 customers, many of which require next-hour delivery of pipes, valves and other emergency parts to remote oil rigs.

Also, Wilson already provides customers — at no charge — what many of the digital marketplaces plan to charge money for: order and sales summary reports. "So at this point, I have a hard time seeing the value of a marketplace that's charging a fee to install themselves between us and our customers," Chellis said.

## Commoditization Concerns

Still other manufacturers worry about their products being reduced to commodities in an online environment where buyers can easily compare prices across hundreds of suppliers.

But according to Forrester analyst Paul Hagen, online commoditization and the downward pressure on product prices will ease as marketplaces become more technologically sophisticated, enabling traders to search on attributes other than price. Among other things, "companies will be able to publish their manufacturing schedules right to an e-marketplace," Hagen said.

Companies are also concerned about giving up the chance to distinguish themselves from competitors by offering value-added services, such as reporting, to win more sales. That's because many of the new marketplaces plan to provide detailed reports to all customers whose information they capture automatically during trades executed online.

Consider the $400 million Texas-based brand-name clothing manufacturer that provides its small and mid-size retailers — many of which remain unautomated — with computerized order and sales summaries. The free, value-added service has been key to retaining hundreds of $100,000-per-year customers and the prized shelf space they control, a manager said. Handing that service off to a third party just doesn't make sense, he added.

Steven Zerby, e-commerce coordinator at $20 billion Marathon Oil Co. in Findlay, Ohio, says he's suspicious of the huge cost savings analysts say the marketplaces will deliver.

"There's a myth that you can take hot technology and apply it to transactions and get efficiencies," Zerby said. "The oil industry has been wringing costs out of transactions for 20 years, so our industry is already pretty efficient."

Also, because the oil industry is conservative and tends to follow rather than lead where information technology is concerned, Zerby said he doesn't anticipate a big rush to digital marketplaces, at least not for 18 months or so.

Still, he said, he believes in being prepared. Despite Marathon's "very limited exposure" in today's Internet business-to-business marketplaces, IT's job should be building an internal e-commerce backbone "so we're ready when our business development group wants to make the leap," he said.

At the same time, Zerby acknowledged that the cost of "business-to-business middleware is in the high six figures. Getting that funded without a specific line-of-business application in mind is one of the biggest challenges."

## B-to-B Market Advice

*How to get there from here*

- Stop building in-house e-commerce applications.
- Move at least 1% of procurement to a marketplace to gain experience with how they work.
- Companies with large purchasing or sales volumes should negotiate an equity stake in the marketplace.
- Make rich content available. XML-enable catalogs and content so it's easily searchable by online customers and suppliers.

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

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E-marketplaces are still a lot like the emperor without clothes. They may not be naked, but they're definitely in their boxer shorts.

MARK CHELLIS, VICE PRESIDENT OF ONLINE BUSINESS AND MARKETING, WILSON SUPPLY CO.



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# GEIS Splits Into Two E-Commerce Firms

*GE unit plans to migrate customers off proprietary network to the Internet*

BY JULIA KING
ORLANDO

GENERAL ELECTRIC Information Services is getting out of the proprietary network business.

Last week, GEIS CEO Harvey Seegers announced that the GE unit, based in Gaithersburg, Md., is splitting into two new and separate companies that will deliver business-to-business e-commerce services over the Internet.

"The [proprietary] VAN [value-added network] we knew is entering its twilight years," Seegers told GEIS users gathered here for the company's annual users' meeting.

The new GE Global Exchange Services company, which Seegers will head, will build and implement e-commerce systems, including Internet-based trading exchanges.

For years, GEIS has furnished the underlying proprietary network and support infrastructure for large trading communities — comprising more than 100,000 trading partners in all — in the petrochemical, telecommunications and other industries, Seegers said.

## Focus Shifts to the Internet

Now, he said, GE Global Exchange Services will focus on creating new business-to-business Internet-based marketplaces. The new company, which will inherit about 1,500 GEIS employees, also will sell an array of e-commerce software and services, including Internet-based procurement and application integration both within companies and across supply-chain partners, Seegers said.

The application integration software and service, known as AppFusion, has been tested over the past year, linking online retailers ValueAmerica.com and TheBigStore.com to suppliers of the more than 40,000 products the companies sell online.

"What they're hoping is to be pitted against companies like Ariba and Commerce One, two of the leading and fastest-moving business-to-business procurement software and marketplace vendors," said Greg Girard, an analyst at AMR Research Inc. in Boston.

But the battle to differentiate itself will be an uphill one for the new company. "The reason is that GEIS has pretty much been a company with me-too offerings, with only a couple of exceptions," Girard said.

Among those is its trading information exchange, or TIE, a secure supply-chain extranet originally developed for U.K. retail giant Tesco PLC.

## Commercializing TIE

"GE now plans to commercialize that offering, but the challenge will be converting it into a configurable solution that matches how other retailers want to manage promotions and relationships with their suppliers," Girard said.

GE's second new company, GE Systems Services, will have about 500 employees and will focus on back-end software and services, including a three-year initiative to migrate existing GEIS customers from proprietary networks to open, Internet-based systems. ▶

### GE Spin-off

*GE's Information Services division is splitting into two different companies:*

**GE GLOBAL EXCHANGE SERVICES**

- 1,500 employees
- Will provide Internet-based procurement software and services, application integration and data exchange services
- Will develop and build business-to-business Internet-based marketplaces
- Headed by former GEIS CEO Harvey Seegers

**GE SYSTEMS SERVICES**

- 500 employees
- Will provide global infrastructure to support the new Global Exchange Services company
- Headed by President and Chief Operating Officer Jim Macioce

# What's Sun's Storage Plan?

*Analysts question company's strategy*

BY KATHLEEN ONLSON

Sun Microsystems Inc. is rattling its storage saber more loudly this year, but analysts say they aren't sure where the saber is pointing.

Sun last month announced a new storage initiative to take on Hopkinton, Mass.-based storage leader EMC Corp., extending its Jiro storage management platform across all of its storage product lines and preparing to launch a high-end storage device by midyear.

Analysts said much of Sun's storage focus is on its own server customers rather than on companies beyond its customer base.

"Sun has a dual personality when it comes to storage. ... They've had difficulty spelling things out," said John Webster, an analyst at Nashua, N.H.-based Illuminata Corp. Sun views storage as a feature with limited value, yet it knows storage is a significant space to go after, Webster said.

"To be truly open, [Sun] needs to support lots of different environments," but 90% of its storage support is Solaris-based, he said.

Part of Sun's challenge is to be willing to look beyond its server business, said Carl Howe, an analyst at Forrester Research Inc.

According to the Cambridge, Mass.-based research firm, storage now accounts for 50% of a server's cost and will jump to 75% by 2004. "Servers are becoming peripherals to storage arrays," and server vendors aren't happy with this shift, Howe said.

Richard Ptak, an analyst at Hurwitz Group Inc. in Framingham, Mass., said Sun's storage play is halfhearted. Suo has bandied storage about, but it lacks a serious research and development effort, he said.

But Sun insists it's aggressively pursuing the storage opportunity. "Sun is not one bit ambivaleot [about] storage," said Denise Shiffman, Sun's vice president of marketing, network storage. "We're putting a huge investment into the right products and solutions to give our customers what they're looking for."

## In Need of a Niche

The key to Sun's success may be in finding its niche among storage vendors.

"Storage is a costly component of IT budgets, and a lot of profit is going there," said Mike Kahn, president of Clipper Group Inc. in Wellesley, Mass.

Sun also needs to develop more storage expertise. It's hiring more experienced sales employees to go head-to-head with EMC, Webster said. Sun's reseller relationship with Louisville, Colo.-based Storage Technology Corp. helps because it provides storage experience, he said. ▶

| COMPANY | MARKET SHARE | REVENUE |
|---|---|---|
| Compaq | 20.6% | $5.7[illegible] |
| EMC | 14.4% | $4.94[illegible] |
| IBM | 12.8% | $3.59[illegible] |
| Hewlett-Packard | 8.1% | $2.27[illegible] |
| Sun Microsystems | 7.9% | $2.19[illegible] |

SOURCE: INTERNATIONAL DATA CORP.

# Services Firm Revamps

BY JULEKHA DASH
ORLANDO

Mastech Corp., a $470 million services firm in Oakdale, Pa., restructured last week, dividing itself into oine independent firms devoted to different areas of Internet services.

The holding company, iGate Capital, will own a majority stake in the companies, which it plans to take public this year.

Analysts said the move is typical among services firms that hope to claim their stake in the growing electronic services space and lure top talent with stock options.

Firms under the iGate umbrella include Web integration company Emplify Consulting and Symphoni Interactive LLC, which provides Web application development.

The strategy should also help the companies recruit senior-level talent by offering shares in a firm before its initial public offering, said iGate CEO Sunil Wadhwani.



SUNIL WADHWANI: IGate has recruited senior execs

IGate has already lured executives from major computer and consulting firms, said Wadhwani.

Smaller Internet consultancies sucb as San Francisco-based Scient Corp. and Boston-based Viant Inc. have lured similar talent in the past, according tn Albert Nekimken, an analyst at Input, a research firm in Vienna, Va. While these smaller firms may earn less than tbe larger players, they've amassed significant market value. Scient, for instance, had less than $21 millioo in revenue last year, but its market capitalization is more than $6 billion.

"Everyone wants to be a Scieot or a Viant these days," said Joshua Randall, an analyst at Kennedy Information Research Group in Fitzwilliam, N.H. IGate's consultancies will compete against these companies as well as other "boutique" firms including Cambridge, Mass.-based Sapient Corp. and Atlanta-based iXL Inc., said Wadhwani. ▶



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MARYFRAN JOHNSON

# Dear security diary

MEET "PAT RABBINSKY," a newly promoted security manager who's in over his head and eager to tell you all about it. He works at a $500 million company with no established security policies and has just been promoted — ready or not — from network administrator to security manager. He's young, inexperienced, irreverent and a bit overwhelmed by his new responsibilities.



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can reach her at maryfran_johnson@computerworld.com.

Pat will be writing what amounts to his own exposé — sharing the good, the bad and the truly scary — in a weekly "Security Manager's Journal" that begins today in our Technology section (page 64) and on our Web site (*www.computerworld.com*). We're offering this unusual column in partnership with the SANS Institute, which will also run Pat's journal entries weekly on its Web site (*www.sans.org*).

This security manager's identity and his company's real name will be disguised to protect them from becoming a target for hackers. Each journal entry will provide plenty of product details and implementation specifics, as Pat goes about securing the company network and then installing Windows 2000 enterprisewide. "Along the way," he promises, "you'll see the mistakes we make and how we recover. I hope our experiences can help you avoid one or two of the pitfalls we discover."

Making mistakes and talking about them is, in fact, one of the best ways we all learn. In their book *The Minding Organization*, authors Moshe Rubinstein and Iris Firstenberg describe errors as a source of innovation and creativity. They point out how everyday wonders like tea bags and Post-it notes — and truly great discoveries like penicillin — were innovations that their creators stumbled into quite by accident.

Pat Rabbinsky isn't looking for any great discoveries — at least not all by himself — and he's cheerfully prepared to make his share of mistakes. On this very public journey toward a secure network, he's hoping that some of the experts in the *Computerworld* and SANS Institute audiences will weigh in with their advice and comments by sending e-mail to info@sans.org (subject: Pat's Journal). Consider it your good deed for the day — and a chance to do some learning yourself.




CARL E. VAN HORN

# 'Technology for all?' It's up to the private sector

DURING HIS State of the Union address, President Clinton asked high-tech leaders to work with him to help the government close the "digital divide" and open up opportunities for everyone. The speech highlighted the popularity of the digital divide as a metaphor that has swiftly become a staple of editorial pages and political speeches. But it also illustrates the downside of catch-call sound bites that obscure rapidly changing societal trends.



CARL E. VAN HORN is director of the John J. Heldrich Center for Workforce Development at Rutgers University in New Brunswick, N.J. Contact him at vanhorn@ssl.rutgers.edu.

A closer look at how Americans view computers and the Internet reveals a more complex reality that poses new challenges for government policy-makers and corporate leaders in the digital economy. Our comprehensive study of more than 1,000 Americans — a joint project of the Heldrich Center for Workforce Development at Rutgers University and the Center for Survey Research at the University of Connecticut — describes a diverse "digital landscape," ranging from sophisticated "technophiles," who have integrated computers into their daily work and home lives, to "9-to-5 users," who only use limited computer applications at work, to "digital exiles," who don't use computers at all. (You can see the report at *www.heldrich.rutgers.edu/news.cfm.*)

Unlike earlier periods in U.S. history when workers feared technology's progress, Americans today express optimism about the current and potential benefits of the digital age — a view held regardless of region, race, gender, age, income level or education. Our study shows that nearly six in 10 Americans believe computers have changed their lives for the better and nearly eight in 10 believe that new information technologies are good for the economy. Only the digital exiles know they have been left out and left behind.

Americans say they want more than just high-speed Internet connections and fast computers. They're demanding that technology deliver on the promise of a better quality of life through widespread applications such as telecommuting, anytime/anywhere education, better health care and consumer empowerment.

For example, four in 10 workers told us that new technologies should allow them to work from home at least part of the week, but only 16% have that opportunity. A sizable majority (61%)

said they would like to tap distance-learning technologies, but only about one quarter (26%) have participated. A smaller but significant number (one third) expressed strong interest in using the Internet to make their next career moves.

After we connect the digital exiles — which should be a high priority in the world's richest nation — transforming hardware and software into tools for improving American workers' lives is the next frontier of corporate and public policy. This will pose an enormous challenge for the computer industry.

Ford, Delta Air Lines and a few other employers have taken a historic first step by providing computers and Internet access to all of their employees for home use. This idea will sound good to many companies, but the private and public sectors must work together to give people more than access. The federal government should continue to provide leadership that encourages and promotes exemplary, broad-based IT applications that empower users. But the computer industry and technology executives have the responsibility to envision, create and promote those applications that will make the digital revolution a liberating experience for all. ◗

ALLAN E. ALTER

# Four lanes to avoid traveling on the Internet highway

A SUCKER IS BORN every minute, but I suspect the birth rate has risen considerably in the Net era.

For every Internet billionaire, there are a billion Internet disappointments: the investors who bet the ranch on frothy Internet stocks, the employees who slaved 80 hours per week for stock options that fizzled out, the parents who ordered Christmas gifts that never came down the chimney.



ALLAN E. ALTER is editor in chief of the *MIT Sloan Management Review* and a former *Computerworld* editor. Contact him at alter@mit.edu.

So I think it behooves anyone involved with the Web — and that includes any IT pro or business strategist — to ask himself an unpleasant question: What am I doing that could lead to disappointment two years from now? Here's one man's list:

**Single-mindedly pursuing Plan A:** Entrepreneurs talk too confidently of their e-business plans. Trouble is, no plan can stand up to e-commerce. Life on the Web frontier is too mercurial and fast, too full of intangibles and ambushes to bet on a plan. Internet strategists need a Plan B and C in the very likely case that Plan A fails. Better yet, they should talk with customers and keep adjusting their plans to give them what they want. Likewise, IT people must build flexibility into their systems and contracts.

**Whacking out on pop management books:** Fame and fortune are yours if you can write a business best seller, and plenty of Tom Peters wanna-bes want to be New Economy guru-millionaires. But do they have anything new or even sensible to say? Two formulas that particularly irk me: books on the business secrets of people (real or fictitious) who never ran a business, and books that take everything learned about management, turn it inside out and proclaim these inversions as New Economy gospel. Managers need better analyses than that.

**Substituting gimmicks for values:** I'm tired of reading articles about executives whose ideas of building morale and encouraging creativity are to make employees go through peculiar initiation rituals or go on some bizarre corporate retreat. I'll bet many employees find these discomforting and insincere and no compensation for the burnont hours they're working. These rituals are no substitutes for the values that build loyalty: respect, honesty and honorable behavior. If creativity is what you want, get serious, not silly. Train your people to work more creatively. There's an entire field of literature on how to develop one's creative potential, from such authors as Edward De Bono and Michael Michalko. Use it.

**Burning customers:** I know I've said this before, but too many dot-coms don't get it. Don't let down your customers. Deliver on your promises. Be dependable. Yes, venture capitalists expect a fast, two-year turnaround on their investment. But your risk — and theirs — will only increase if you start a death spiral of negative word-of-mouth publicity. Yes, there are dot-coms like AOL that have let down customers, begged for forgiveness and gotten away with it. But do you want to depend on forgiveness? Instead, consider this advice from airline executive Jan Carlzon's 1987 book, *Moments of Truth:* "The way to win customers is to excel at service when a customer in crisis puts your people to a test." So, when a dot-com flunks that test, don't do business with it. Period.

The so-called New Economy may have opened new ways to compete and may reward flexibility over stubbornness disguised as planning. But it didn't undo the values of reliability or substitute gimmicks and e-business fashion for sound thinking. Let the e-sucker beware. ◗

# READERS' LETTERS

## Storage savings offset cost of Y2k

TODD CAUGHEY, a *Computerworld* reader, asks in the Jan. 24 letters ["The Cost of Y2k"], "Has anyone calculated the total savings [in storage costs] since these economy measures were first taken?" The answer is yes. Leon Kapplemann, a professor at North Texas University, and some of his students published a study a few years ago concluding that Y2k programming costs were more than offset by storage savings.

Such studies, bowever, have to make so many assumptions that they virtually preclude any independent studies ever duplicating the results. How far back does Caughey wish to go to find when such measures were taken? To the first business application on the Univac at GE-Louisville? Maybe even to the underlying punch card applications, where the limitations encouraged even single-digit years? Does one count the additional savings of archiving the shortened records on magnetic tape? The savings of transferring those records in and out of the CPU and the savings of CPU memory? All of these were expensive and sometimes limiting items in application costs.

These issues are added to the questions of how one measures costs for the disk space required. Many slight extensions of records don't result in net increased storage costs at all as they fall into the white space created by track-length gaps and extent pluses. One must also estimate the countless date fields that occur in the total data store.

Even if you could do that, the assumption still remains that it takes 2 bytes to record the difference between the 20th and 21st centuries. That is, after all, a single-bit problem. Certainly one could tuck away a single bit for each such field (probably within the two-digit year itself) to make that distinction. Interrogate the bit and prefix either 19 or 20 to the two-digit year — then do the math. With a few changes in data type and maybe a compiler addition, we could have reaped those storage savings with small if any Y2k penalty.

**Bob Kendall**
Hopewell Junction, N.Y.
Bobkend@aol.com

## Handheld devices aren't always needed

I FOUND Matt Hamblen's article "Handhelds Link to Inventory Database" [Technology, Feb. 7] describing the United Center's use of handhelds very interesting, but it exhibited one major flaw regarding the use of technology: overkill.

As a long-suffering Chicago Blackhawks fan and a witness to that franchise's mismanagement, I can tell you that recording the sale of Blackhawks jerseys could more appropriately be done on the fingers of one hand than on a handheld device!

**Robert Link**
Lincolnshire, Ill.
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## Year of the dot-com

LIKE MARYFRAN Johnson ["Growingpains.com," News Opinion, Feb. 7], I agree that this year, successful, traditional businesses will move into the dot-com arena.

These businesses are finding e-commerce profitable and achievable, especially given a stronger business focus, brand identity and a pool of managerial talent.

**David A. Tussey**
Sapient
Jersey City, N.J.

**COMPUTERWORLD** welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

## What is Windows 2000 Advantage?

Windows 2000 Advantage is the partnership among Microsoft, Compaq and Computerworld Enterprise Business Solutions to inform IT leaders about Windows NT and Windows 2000 technology by providing timely, useful information — in print and online — for planning and deploying Windows NT and Windows 2000 with Compaq services and solutions.

## Online This Week

### Planning for Windows 2000

Now that Windows 2000 is a commercial reality, it's time to explore planning and deployment issues. If you have an enterprise of any appreciable size, *please* do not assume this is just another software upgrade, says columnist Bob Williams. The wealth of functionality available in Windows 2000 has a counterpoint — to effectively utilize these features, you must understand and plan for their deployment.

### Compaq, Microsoft building ProLiant Datacenter strategy

In an effort to move into the market now served by mainframe and midrange servers, Compaq is introducing ProLiant 32-processor servers for large Internet and e-commerce applications that need higher performance, reliability and scalability.

### Windows 2000 benefits worth arduous deployment journey

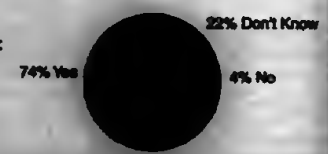
Members of the latest Windows 2000 User Roundtable say they are very impressed by the benefits they have gained from Windows 2000. They are equally impressed by the amount of planning and testing required to realize those benefits.

**Quickpoll**

**Are you more inclined to deploy Windows 2000 now than you were six months ago?**

**Cast your vote now at www.Windows2000Advantage.com.**

Check out ▶ the current results:
*Base: 186*




Microsoft

# Windows 2000



# Windows 2000 users sound off on migration

**Cultural changes. Active Directory. Rollout schedules. Just some of the topics covered in our latest roundtable**

Compaq Computer recently hosted a Windows 2000 Academy in Rocky Hill, Conn., for key customers migrating to the new operating system. The academy provided attendees with the opportunity to spend an intense week learning about and working with Windows 2000.

Our roundtable was made up of Paula Blanchard, messaging/server manager at CareGroup in Boston; Christopher McAndrews, vice president of Credit Lyonnais in New York; Mark Piscione, system engineer at Fidelity Investments in Marlboro, Mass.; and Michael Zappacosta, senior systems architect at Conectiv in Mays Landing, N.J. The discussion was moderated by Windows 2000 Advantage reporter Stefanie McCann.

**Q: Now that you've had your hands on Windows 2000 these past few days, what are your impressions?**

**McAndrews:** It's different from NT.

**Zappacosta:** It's much more complex.

**Blanchard:** I think it seems more complex but if we think about all the little things that we manage, we actually already manage big chunks of it. I managed Exchange. I have to deal with directories all the time, so I am not so afraid of Active Directory because I look at it from an Exchange point of view. So I'm thinking, "Great, this will actually help me get to one directory that will work the way it's supposed to work. It'll actually make the processes I have to go through to do my job a lot easier." So it seems big because it's all in one. It's like the Ginsu Knife — it does everything. I think that's what makes it seem so big to me.

**McAndrews:** If you don't have experience with Windows NT and you said, "OK, I want to set up an environment and administer it right now," you couldn't do it. But now I have that knowledge. But there are a lot of little things that are different between NT and 2000. They're trying to give you more control.

**Q: I'm sure they've been telling you there will be cultural changes within your IT organization when rolling out Windows 2000. What are your thoughts on that?**

**Zappacosta:** Most certainly there will be changes.

**McAndrews:** There will be changes if what we learned from this is true, meaning the environment really ties together most of your groups.

**McAndrews:** The network is involved with this, security groups are involved with this.

**Blanchard:** We are going to kiss and make up with the network people is really what I'm thinking. ◗

To read the full text of this roundtable, visit www.Windows2000Advantage.com.

# ADVANTAGE

The Web Magazine for IT Leaders implementing Windows NT and Windows 2000 with Compaq Services and Solutions

## Windows DNA 2000: Linchpin in Microsoft's e-comm strategy

*By Mark Walla*

Windows Distributed interNet Application (DNA) is a conceptual model and a family of products — not all of which are yet available — that embrace a number of specific products and technologies targeted primarily at e-commerce Web sites. When fully developed, Windows DNA 2000 will offer these sites scalability, load balancing, partitioning and application integration.

The Windows DNA 2000 strategy involves a full commitment to a three-tier/N-tier distributed computing model. The three-tier architecture provides a standard on which the Internet-based HTTP protocol can overcome the limitations of tools like Telnet and FTP. Under this model, a Web browser can retrieve files from a shared Web server. This concept was expanded to include distributed objects in the N-tier model. Instead of placing the responsibility on one application, it can now be distributed across many applications or services.

Windows DNA 2000 encompasses the following Microsoft products that work together to form a cohesive Internet applications environment:

- Windows 2000 Operating System – Windows DNA 2000 incorporates the key operating system features of Windows 2000 that support multi-master Active Directory Services, COM+, Internet Information Server 5.0, Active Server Pages, Microsoft Transaction Server, Microsoft Message Queue, ActiveX Data Objects and XML.
- SQL Server 2000 – Windows DNA 2000 integrates an XML interface for Web access, four-way clustering supported by the Windows 2000 operating system, data mining capabilities that exploit historical trends found in database content and an enhanced relational engine for large data sets.
- Host Integration Server 2000 – This product provides COM Transaction Integrator and XML Transaction Integrator capabilities to support synchronous and asynchronous communication and development support for previously created applications and legacy business logic.
- Commerce Server 2000 – This is the new release of Site Server 3.0 Commerce Edition. It was designed to ease site development complexity and easily integrate back-end and middle-tier components.
- Visual Studio – The Visual Studio development suite provides tools for the user interface and front-end, the middle-tier and distributed components, and back-end database schema development and performance analysis.
- Application Center 2000 – This product provides enhanced scalability. It supports high-volume server farms for load balancing and high availability.
- BizTalk Server 2000 – BizTalk supports XML and established Electronic Data Interchange data formats to reliably deliver business documents over the Internet.

To read the full text of this story, visit www.Windows2000Advantage.com.



## Point of View

### QTEST network opens Win 2000 doors to users

*By Stefanie McCann*

When you combine Compaq's Windows 2000 expertise with the eagerness of its Services organizations to help customers, one result is QTEST, a dynamic global Windows 2000 environment with 150 servers (a number that grows every week). QTEST allows consultants and administrators to model a wide variety of scenarios on a production network without having to set up their own labs.

Because Windows 2000 is more complex than Windows NT, Compaq Services required new learning techniques that allowed consultants to design stable and robust infrastructures. When dealing with Windows NT, consultants and support engineers could set up a few machines to reproduce a customer problem. However, the more sophisticated Windows 2000 has issues such as Active Directory replication and DNS design that must be deployed in a large, enterprise environment in order to reproduce problems and test configurations.

Compaq's Corporate Information Management (IM) group is responsible for the company's corporate Windows NT and Windows 2000 infrastructure. Fearing computing chaos, it wouldn't allow consultants and support engineers to install domain controllers and perform other administrative tasks on Windows 2000 servers within the corporate network. As a result, the Services organization had to come up with another solution, preferably one that would allow people the flexibility to work with Windows 2000 while using corporate computing resources such as Compaq's worldwide network.

That solution was QTEST. In May 1999, the QTEST Windows 2000 forest was born with the full support of Compaq IM, including a delegated DNS and network zone to allow QTEST administrators to design and manage that forest on the corporate network. Used by hundreds of Compaq engineers and consultants on a daily basis, QTEST is now primarily managed by a group of 10 core enterprise administrators from Compaq Services.

To read the full text of this story, visit www.Windows2000Advantage.com.

**www.Windows2000Advantage.com**

GO

LENNY LIEBMANN

# Jump on the instant messaging bandwagon

CORPORATE INFORMATION technology managers always seem to be the last to know. PCs, handhelds — even the Web itself — have all come in through the back door.

The same thing is about to happen with so-called "instant messaging," or IM, with the most popular example being AOL's Instant Messenger (AIM). Most IT types still view AIM and its cousins as consumer toys — more suitable for gossiping teen-agers than for serious enterprise-class applications. But make no mistake about it: IM is a potentially tremendous tool for creating value and achieving competitive advantage. IT managers ignore it at their peril.



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Say you're in financial services. Think your customers would like to receive immediate notification when the price of any stock they're holding moves by more than 5%? Think they'd like to be able to instantly execute a trade directly from that notification?

IM can do that. Unlike e-mail, IM is a real-time medium. That's important when it comes to things like stocks, airplane seats and auctions that don't wait around while mail servers lazily work through message queues. IM also detects whether individual customers are online. So, unlike e-mail or voice mail, you know they're getting your message. IM lets you move right into interactive "chat" with your customers so you can resolve business issues right away. You can easily keep multiple IM interactions going at the same time (that's how my kids use it). IM is also a directory-based technology, so it enables you to create secure, bounded online communities. Still think it's just a teen toy?

Of course, IM is no panacea. Right now, the IM client market is fragmented across proprietary networks including AOL, ICQ, Yahoo and Microsoft Services Network. Corporate development teams don't have any experience integrating e-commerce applications with these IM networks. And no one is sure how Internet service providers will respond when businesses start taking advantage of free IM services to push their e-value propositions to the next level.

But these issues will be resolved quickly, as the market begins to realize the incredible value of real-time communications over the Internet. In fact, the typed-text communications that IM now offers are probably just the first stage in the evolution of the real-time Net. Voice, graphics and video can't be far behind.

Think about it. IM detects the presence of known users. It provides directory-based authentication. And, if network problems temporarily disrupt their ability to deliver real-time messaging, IM servers can simply switch into "store-and-forward" mode temporarily — imitating e-mail until real-time connections can be restored. That's a much more intelligent model for voice over IP than simply trying to duplicate the behavior of the conventional public switched telephone network on the Net.

So do yourself a favor. Don't adopt a wait-and-see attitude toward IM. Get your hands on it now. Your developers need to know how it works, and your marketing people need to start thinking about how they can use it to offer value-added services that bond your company more closely with your customers. After all, how many times do teen-agers have to be right about technology before we start listening to them? ◗

RICHARD FRANKLIN

# Modernizing the back office of the securities industry

AFTER BEATING the Y2k bug, the securities industry faces a more complex problem. In processing securities transactions, neither the computer systems nor the business procedures they automate are up to the challenges of the 21st century. This can't be fixed merely by sending in programmers. The entire industry will have to change.



RICHARD FRANKLIN is a professor of MIS at the Katz Graduate School at the University of Pittsburgh, as well as a consultant and former IT executive in the financial services industry. Contact him at rfranklin@katz.pitt.edu.

Securities trading has boomed in recent years. Thanks to computerization, more shares of stocks, bonds and mutual funds are traded faster than ever on exchanges around the world. Trading hours have expanded and global investing is more common.

The trouble is, the "back office" is approaching the point where it can no longer keep pace. The back office is where trades are settled by moving money and shares to the people who should get them, and where everyone's records are kept straight. Few outsiders know how crucial and complicated these operations are.

When a trade is executed on an exchange, all that happens is that a buyer is paired with a seller at an agreed-upon price. Many more steps are needed to complete the deal. Brokers, investment managers, custodians, depositories and others must all communicate to actually move the shares and money and update their books.

Much of this is now done in "batch." Computers crunch through huge piles of data after the close of the trading day, and a lot of human intervention is required as well. A typical back office has armies of people reading screens and printouts, verifying in-process trades and manually reconciling accounts.

The whole mess is a relic of, well, the 20th century. It has been tweaked and prodded, but now, the paradigm is breaking down. Goals like true around-the-clock trading and next-day settlement — often spoken of as being just around the corner — can't be reached by squeezing the current setup any further.

The industry moved from five- to three-day trade settlements by running computers faster and longer and throwing more people at the work. We can't get down to next-day settlement the same way. While trade volumes and workload grow, the time available shrinks because of extended trading hours and global trading.

Another concern is the growing likelihood of errors in processing. Companies "on the hook" for back-office errors — whether they be brokers, custodians, fund managers or others — could face fines or penalties for problems that impact investors. Some could lose market share or even be forced to exit the business.

The industry is aware of the crisis. The Global Straight-Through Processing Association, a consortium of leading industry participants, is designing new systems for real-time, computer-to-computer processing. This technology is essential, but only part of the solution.

In addition to replacing batch-oriented computer systems, the industry must also shed its reliance on batch-oriented business operations. These methods, by nature, result in logjams and errors, to be caught by a final review. Real-time continuous transaction processing is needed, with each transaction being hooked, confirmed, reconciled and settled as it occurs. Quality control must be built into each step, not tacked on at the end by inspection.

The term *back office* reflects an obsolete mindset, connoting a support function, something ancillary to the main show on the trading floor. It must be treated as what it is: a mission-critical production facility that turns out completed transactions.

Building the efficient, scalable transaction factory of the future won't be easy. A complete redesign must fully leverage the latest technologies, which have come a long way since current legacy mainframes were installed. Moreover, a single firm must get all the firms it communicates with during trade processing to go along.

But status quo is not an option. Sooner or later, some firms will move to the new paradigm — and those that cling too long to their dinosaur systems and operations will go the way of the dinosaur. ◗



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# BUSINESS



## WIRELESS COSTS

All eyes seem to be on the market for wireless Internet services, but the high price tags for the systems themselves, plus the connect time, could be stifling its growth. Some companies, however, are willing to foot the bill for a new way to reach customers. ▸ 40

## ALL-STAR TEAM

With directors like John Elway, Michael Jordan and Wayne Gretsky, the focus is on fun and games at MVP.com, says Chief Technology Officer Ian Drury. Leslie Goff offers a snapshot of life at the online sports and fitness retailer, where the offices are sprinkled with pool tables, treadmills and exercise bikes. ▸ 46

## PRIVACY PARTNERSHIPS

The new century has brought with it plenty of warnings about invasions of privacy and security on the Web. In order to earn the trust of online customers, companies must pair their information technology people with their accountants, writes Peter G. W. Keen. ▸ 46

## BUILDING BLOCKS

In the rush to go online, businesses pile mishmashed networks under their Web sites and hope for the best. Companies need to raise their standards and take the time to build sites that can withstand a full-scale cyberstorm, writes Kevin Fogarty. ▸ 40

## VALLEY GIRLS

Blatant sexism may have gone the way of the dinosaur, but more subtle cultural biases are driving women in Silicon Valley nuts. The problem has led to an exodus of women from IT jobs. But other female leaders say it's up to women to show their peers that they can hold their own. ▸ 54

## INFORMATION OVERLOAD

As floods of e-mail pour in from customers, companies are realizing that the Web may make them a little too accessible. To lighten the load on customer-support staff, some are looking to application service providers for intelligent autoresponses to common questions. ▸ 44

## CRACKER POLICE

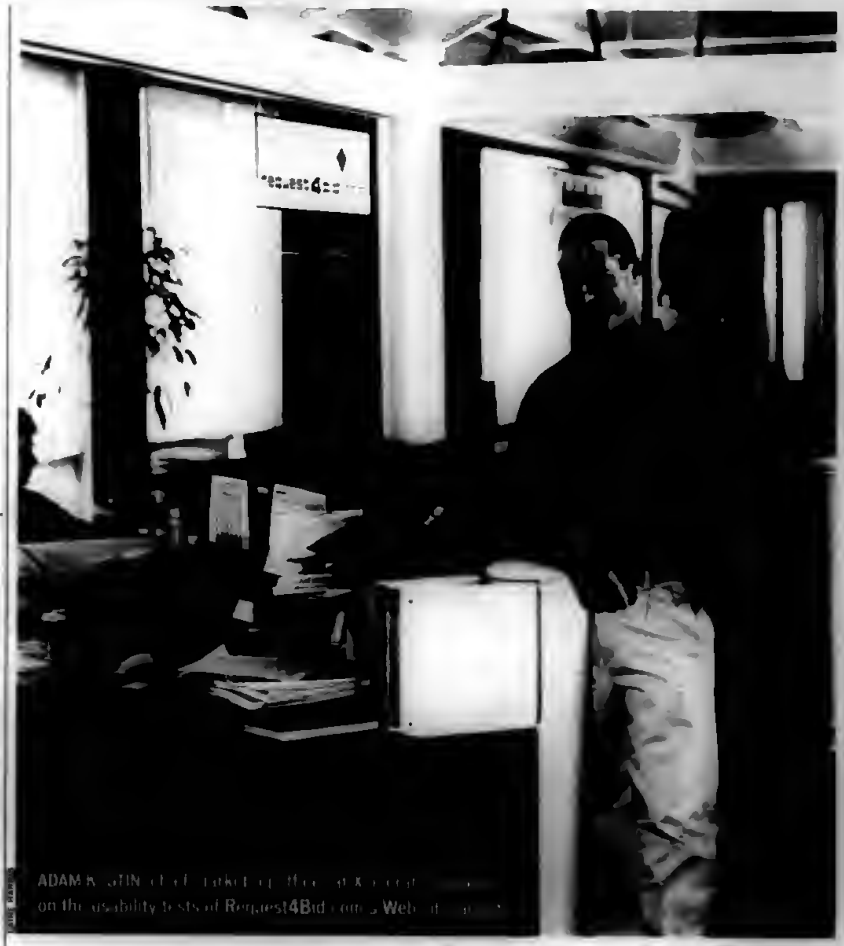
Federal investigators are looking for broader powers to go after Internet crackers. U.S. Justice Department officials want a search warrant that would let them cross state lines to track down people who attack Web sites. ▸ 42

## NEW IT LEADERS

After a year on the job, four IT leaders from Health First Inc., Capital One Financial Corp., Nationwide Life Insurance Co. and Charles Schwab & Co. talk about challenges and pitfalls they've faced. ▸ 48

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# SWEATING THE DETAILS

**WATCHING A TESTER** click on your soon-to-be-live e-commerce Web site can be scary. Did you make it easy to use? Did you nourish users' intuition, or did you frustrate them? *Computerworld*'s Gary H. Anthes visited a Web site usability lab in Atlanta, where a dot-com start-up was putting the final, fear-of-failure-induced changes on its design. 52

# Users Becoming Positive on Wireless Internet E-Services

*Costs may still be a problem for companies*

BY MATT HAMBLEN

There's little question that the infant wireless Internet market is poised for growth, in both serving U.S. companies trying to reach their customers and connecting mobile workers to corporate data.



ACCORDING to reports, the average cell phone bill fell dramatically between 1987 and 1998

The Wireless 2000 show in New Orleans earlier this month featured a rash of products and services to help companies prepare for a wireless market, but analysts believe the chief obstacle may still be cost for corporate use.

Fidelity Investments in Boston cobbled together its own wireless system, which now gives 30,000 customers wireless two-way pagers to get information and make trades.

It might have preferred to buy that capability, but no company offered enough of a range of functionality, according to Joseph Ferra, a senior vice president at Fidelity. Ferra said the system's high cost was justified by the enormous promise of wireless.

Self-integration may be less of a problem, following announcements by players like Microsoft Corp. and Sun Microsystems Inc. that crowded the Wireless 2000 show. This year's show had more than twice the number of exhibitors specializing in wireless Internet services or products than were in last year's show.

Fidelity said it is pleased with its own service, although it has signed up only 1% of its 3 million accounts [News, March 6]. The company is also testing ways to wirelessly connect field salespeople to customer data, however.

At Sabre Inc. in Dallas, a pilot project is under way to let Wireless Application Protocol phones get an alert from the global travel reservation system, in hopes of notifying business travelers when a flight has been canceled.

"We see the concept of getting information anywhere at any time on any device a good business move," said Kareo Springs, a Sabre spokeswoman.

Connection costs may also make it more difficult to attract customers, though semiannual surveys of hundreds of cellular providers conducted by the Cellular Telephone Industry Association in Washington show that the average monthly bill dropped from $96.83 per month in 1987 to about $39.43 in 1998.




DESPITE obstacles like cost and functionality, firms are seeking products for wireless devices

Some analysts recommend changing the payment system so providers can charge for each packet of data sent wirelessly, rather than charging 10 to 40 cents per minute of use (with fractions of minutes rounded up) and charging cell phone users for incoming as well as outgoing calls as is the common voice cellular practice.

Jeff Bezos, CEO of Amazon.com Inc. in Seattle — which is making its own push to attract customers who use wireless devices — said in a presentation that he thought U.S. users would find it confusing to base transactions on packets, because they would have trouble measuring how many packets an e-mail or other connection would represent. But Bezos urged U.S. wireless carriers to try flat-based monthly pricing for unlimited usage, a model in limited use in the U.S. today.

KEVIN FOGARTY/BRICKS AND CLICKS

# Raise net standards

**IN THE READY-FIRE-AIM culture of the Web, stopping to assess a problem is seen as a death sentence. Site goes down? Throw servers at it! Throw bandwidth at it! Sure, it costs a lot, but the site's back up, right?**

Good plan. It might keep your systems up — for now.

But often, it's the way the site went up, not the reason it came down, that's the problem.

In the rush to build Web sites that connect to internal transaction processing and other networks, nascent e-commerce operations are just reinventing a problem that network operations people have been complaining about for years — messy, unplanned systems.

When eBay went down repeatedly last year, the problem wasn't traffic; the problem was that eBay wasn't following the right procedure in adding storage systems on the back end.

When a cracker calling himself Curador was able to steal thousands of credit-card numbers from wireless phone seller Promobility.net and online credit-card processor SalesGate.com two weeks ago, it was the known boles in their Microsoft software, not his evil brilliance, that got bim in.

Most online operations, especially those connected to existing businesses, take a mishmash of networks and applications that kind of work togetber and bolt them to the Internet, hoping the wbole mess doesn't come down.

What they need to do is raise their standards — a lot. Instead of a site that manages to just stay afloat from day to day, they need an infrastructure that can stand up to a full-scale cyberstorm. And that will take some changes.

"With e-commerce, your internal operations are published, the application is like glass and IT is not used to the level of security that's needed," says Gary Moore, CEO of network infrastructure consultancy Enterprise Networking Systems.



KEVIN FOGARTY is *Computerworld*'s business editor. Contact him at kevin_fogarty@computerworld.com.

His business is telling people bow to design networks, so you'd expect him to be critical. But he's right.

Every security story we write at *Computerworld* ends with the same advice: Get the patches and do an audit to make sure you aren't accidentally giving away sys/admin access or something. But too many sites just don't do it.

So do it. And think about some of these other techniques, too:

- Benchmark your network *and* your applications. When you run into problems, check to see if it's the application that's causing the problem. Software that was built and tested on a LAN may have latency problems on a WAN or the Web.
- Separate the traffic on your Web site from the rest of the traffic on the network. Add more security to the Web subnet, and monitor it more heavily than the rest of the network.
- Use policy-based network management software to limit the kinds of traffic you have on different parts of the network. If the guy in sales who's downloading a 5MB MP3 file from Napster is using the same pipe as your Web site, you're toast.
- Think about outsourcing the design, management and security of your Web site to infrastructure specialists. You keep control of the look, feel and content; let the pros (who you can't hire or retain in sufficient numbers anyway, right?) handle the underlying network goop.

It's slower, but delaying your next site redesign a month to get the underlying architecture right increases your chance of staying online — without emergency infusions of bandwidth.

Microsoft

John Studdard, VirtualBank

"

www.SeeMyStory.com John



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# DOJ Seeks Online Warrant To Help Chase Crackers

*Hacks across state lines complicate search warrants*

BY PATRICK THIBODEAU
WASHINGTON

THE U.S. DEPARTMENT of Justice two weeks ago asked for more money to catch crackers, a request that drew support from one Web business that has firsthand knowledge of the government's needs.

Paul Misener, a vice president at Seattle-based Amazon.com Inc., said the Internet retailer's information technology staff has been working with federal investigators to bring them up-to-date on Internet technologies and on ways to better preserve digital evidence.

"Perhaps there have been things that have caused us to believe that better preservation techniques could be used" by law enforcers, Misener said. He told a congressional subcommittee two weeks ago that investigators need "continuous training in the latest digital forensic techniques."

Justice Department officials said they're pursuing hundreds of leads in the recent denial-of-service attacks on Amazon.com, eBay Inc., Yahoo Inc. and others. "We are making progress," Deputy Attorney General Eric Holder said at the hearing.

But Justice Department officials say more money and legal changes are needed to track down people who attack Web sites.

For instance, when a cracker breaks into a system, the attack may travel a serpentine route through multiple servers and carriers located in numerous states. But when police and federal agents attempt to trace such an attack, they must apply for court orders in each jurisdiction.

## Nationwide Court Order

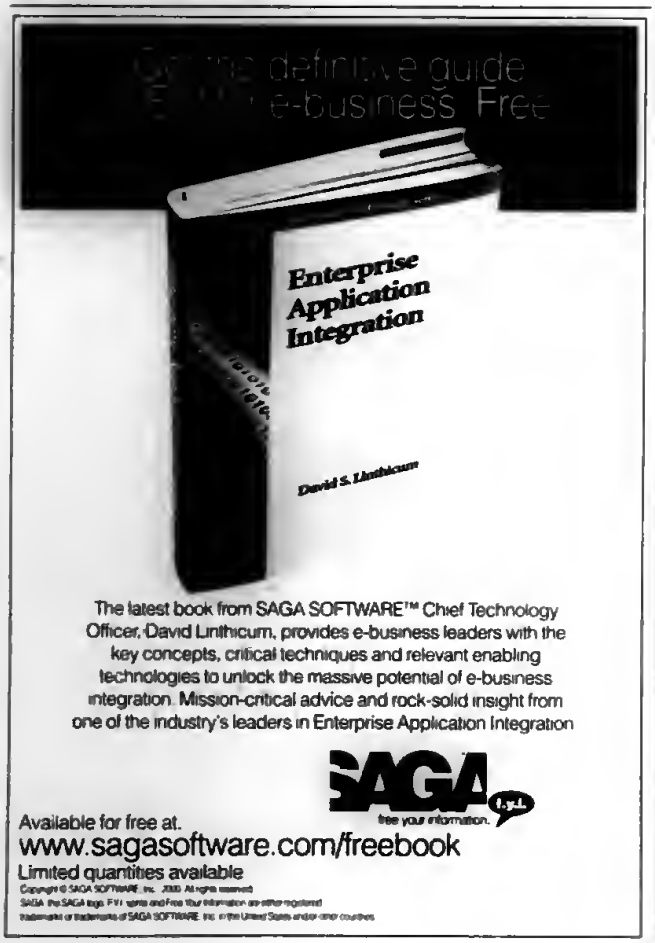
The ability to get one court order for a national trace "would make a tremendous difference in the conduct of this case," said Martha Stansell-Gramm, chief of the computer crime and intellectual property section at the Justice Department.

Sen. Joo Kyl (R-Ariz.) and Sen. Charles Scbumer (D-N.Y.) recently introduced a bill that would allow investigators to completely trace an online communicatioo without seeking permissioo from each state.

But there is some disagreement on the need for new laws. The high-tech lobby is wary of any new security laws for fear they could bring unwanted government regulation. And some members of Congress feel the private sector should be doing more to protect itself.

The government is pushing for improved cooperation between the public and private sectors in sharing information. And cooperation is improving, said David Noznesky, director of corporate security at FPO Group Inc., the parent company of Florida Power & Light Co. in Juno Beach, Fla.

"The private sector is hungry for information regarding the estimate of what the emerging threats are and the changing vulnerabilities," Noznesky said. "There is a desire on both sides to improve that exchange, and it is occurring," he added.



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# Cellular Tracking Systems to Grow

*Phone nets may make location systems cheaper*

BY JOJA J. WEWIN
NEW ORLEANS

Web-enabled wireless location and tracking systems could sooo become a vital part of the e-commerce economy, according to analysts and vendors at the annual Cellular Telecommunications Industry Association convention here two weeks ago.

Ben Reuille, president of Diamond Delivery Inc. in Fort Wayne, Ind., said his satellite-based vehicle tracking system, whicb delivers information to a map-based Web site provided by BFound.com, is essential to his just-in-time delivery business for the automobile industry. Diamond has 53 trucks.

## Tracking Deliveries

Reuille said his company's ability to track deliveries of automobile parts is vital to Diamond customers like Ford Motor Co. in Dearborn, Mich. "If they [didn't] get a delivery on time, they would have to shut down an entire [auto] assembly line," he said.

Some transportation companies already use expensive, satellite-based location systems.

But new systems that derive location information from cellular telephones could make location information ubiquitous and less costly.

Mats Gerschman, president of Victoria, Britisb Columbia-based BFound.com, said his company plans to tap into location information derived from cell phone networks.

Gerschman said cellular-derived location information — mandated by the Federal Communications Commission (FCC) to help find people who make emergency 911 calls by October 2002 — will save shippers and transportation companies from "having to install very expensive satellite hardware."

## Value-Added Services

SignalSoft Corp. has developed software for wireless carriers to help them turn the FCC-mandated location information into "valued-added services" hosted on Web databases, said David Hose, president of the Boulder, Colo.-based company. Business applications would be based on what he called the "Where is the nearest?" question, and would, for example, help a trucker locate the closest company-approved service station.

Cell-Loc Inc. in Calgary, Alberta, envisions such a rich business in value-added location services that it plans to provide location information from the 911 system to cellular carriers free of charge in return for what company Vice President Lew Turnquist called "real estate" on cell towers and base stations to house its locatioo-determination gear.

Turnquist said Cell-Loc plans to build its own North American network and sell information via the Web. Cell-Loc Web sites can be used to manage everything from fleet tracking "to finding your lost cat" if the tabby wears a collar equipped with a miniature cellphone transmitter, he said.

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# ASPs Answer Customer Service Message Deluge

*Ability to respond more intelligently to e-mail queries makes outsourcing more attractive*

BY MARK HALL

THE INTERNET lets companies stay in touch with their customers but at a cost: It can make information technology managers rue the day they launched their corporate Web sites.

For years, customer communications have been funneled into well-staffed and highly automated call centers. Online, however, customers can swamp service departments. But rather than purchasing the licensed software that would help them automate responses to customer e-mail, companies are turning to application service providers (ASP).

"We were getting 4,000 e-mails per month, with two individuals responding — or not responding — to each message," said Ed O'Brien, webmaster at golf club manufacturer Ping Inc. in Phoenix. Adding to O'Brien's frustration was the fact that the answers to most queries were already posted nn the company's Web site.

Ping created a series of answers to typical customer questions and gave them tn RightNnw Technnlogies Inc. in Bozeman, Mnnt. RightNow converted the answers into a form its autoresponse software could use. The software analyzes the content of incoming messages to pick the right answers from the knowledge base.

Sharon Nash, operatinns manager at Allentown, Pa.-based Day-Timers Inc., said she understands why customers use e-mail rather than look for the answers themselves. "E-mail lets people manage their own time better," she said. But they still expect a level of service similar to what they wnuld receive from a technical-support call center.

That's difficult to dn when a technician can effectively handle 80 e-mail queries per day but is receiving 500, as was the case at Day-Timers, Nash said.

The company's initial solution was to hire more technical-support people. But Nash said she knew that was only a stopgap.

Her staff tried to write a simple autnresponse application, but Nasb wanted detailed reporting capabilities that would have bogged the project down. Nash said she considered buying software to solve the problem but decided she could live without another product to maintain. So she hired IslandData Corp., an ASP in Carlsbad, Calif. "With an ASP, we've been able to respond as a 24/7 operation, even though we certainly don't staff as such," Nash said.

Similarly, O'Brien said he chose RightNow Technologies because of its around-the-clock capabilities, but his main concern was getting the response system up and running quickly.

## Functionality Demands

But cost also mattered to Nicole Sudberg, director of member services at Internet service provider Juno Online Services Inc., an IslandData customer. "We needed a cost-effective yet literally effective service," she said.

Sudberg's biggest concern was the ASP's software rules engine. New York-based Juno has more than 8 million members, many of whom get their e-mail and Internet access fnr free.

"We had to have a rules engine that lets premium members go directly through to a live agent" while automatically identifying and answering questions from free-use customers, she said. The autnresponse software analyzes incoming messages and compares them against a database Juno provides to identify premium members.

In addition to wanting a carefully designed rules engine, Sudberg also wanted to have clear expectations for the knowledge base that's used to answer customer questions.

"Automated response is useful for a certain subset nf how-to questions," she said. But for more complex technical questions about issues such as compatibility or connectivity, live technical support is still necessary.

"What happens when a customer who has had e-mail communication with you suddenly arrives nn the call center phone line?" asked Tim Hickernell, an analyst at Meta Group Inc. in Stamford, Conn.



SHARON NASH, operations manager at Day-Timers Inc., says using an ASP has helped broaden online response

"You have to make sure the data is linked so that the call center knows about the custnmer situation on e-mail," he said. With an ASP, data resides offsite and could be more difficult to integrate with overall customer support operations, according to Hickernell.

Katrina Menzigian, an analyst at International Data Corp. in Framingham, Mass., said that even dot-com start-ups that use ASPs for automatic responses to e-mail will need a call center. "A Web site needs people to back it up," she said.

That's because even the best-thought-out knowledge base won't answer all questions, said O'Brien. "Five to 10% nf the questions we respond to come back as being unresolved," he said.

Nash said that about 40% of initial e-mail queries get escalated to Day-Timers' call center. She said the more complex the prodnct is, the greater the chance for escalation.

Hickernell advised, "If you have [a return on investment] based on reduced call center staff, you'd better revise your plan."

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# WORKSTYLES

## What It's Like to Work at . . . MVP.com

**Interviewee:** Ian Drury, chief technology officer
**Company:** MVP.com, a sports and fitness electronic retailer (*www.mvp.com*), whose directors include John Elway, Michael Jordan and Wayne Gretzky
**Main location:** Downtown Chicago, on the West Loop
**Number of information technology employees:** 25; IT will double over the next year
**Number of employees (end users):** Roughly 100
**Launch date:** Site announced Dec. 22; opened for business Jan. 26
**Site traffic:** "I can't share specific numbers, but traffic has been brisk. Our infrastructure withstood the volume driven by our Super Bowl pregame ad and a live mention of the site by John Elway during the game. There were 800 million people watching when he mentioned us, and traffic spiked over 30 times within 10 seconds."



**Do your celebrity directors get involved with IT?** "They are all Internet users; in particular, Elway is an avid Internet user."
**Compensation:** "For IT, this is a fairly competitive marketplace. All permanent employees have equity in the company. And we cover all the expenses of our health care plan."
**Dress code:** Casual. "Basically, whatever you want to wear as long as it's decent. A lot of people here are interested in sports and fitness and the outdoors, and you see that reflected in their dress."
**Do you look for sports enthusiasts?** "It's not a requirement, but it's what has attracted a lot of people to come here."
**Workday:** 8:30 a.m. to 6:30 p.m. "I'd say that right now we work 10- to 12-hour days."
**Decor:** "The ceilings, duct work and cabling are all exposed. We have a mix of pictures of our Web site, competitors' Web sites and sports photos. Everyone has had a chance to clear out their attics and dens and bring in photos of themselves in different sports. All the conference rooms are named after Chicago sports venues, like Comiskey Park, Wrigley Field, Soldiers Field."
**Computers:** Compaq servers; Pentium III workstations for the IT staff
**Is on-site day care provided?** "Not at this point. In IT, I may be the sole parent."
**Average age of IT staff:** 26 or 27
**In-house cafeteria/food service:** None. "But generally there are 30 or so people who are working into the night, so we order dinner every evening and rotate the cleanup activities."
**Free refreshments:** Coffee; sodas are only 25 cents.
**The one thing everyone complains about:** "We need more conference room space. We're moving in May because we're just exploding out of this space."
**Plans for the new space:** "We really want to keep the current look and feel of this space, so we're taking out the ceiling tiles to have exposed ceilings. It's a nicer building, closer to downtown. And we're putting in recreational areas, like a pool table, a Foosball table, a TV, some treadmills and exercise bikes, a small workout area and showers."
**Where the office gossips:** "A club down the street called The Drink, especially on Thursday nights. That's '70s Night,' and they have a band called the Aphrodisiacs."
**Perks:** Monthly team events and parties, tickets to sporting events (such as the National Hockey League All-Star Game), Starbucks coffee and periodic 20% discounts on selected manufacturers' merchandise.
**Would employees feel comfortable e-mailing the CEO, John Costello?** "Absolutely. He freely invites feedback from employees. There's no door on his office."
**Quote:** "What's really powerful here is being a part of creating something from the ground up. The whole team shares in that and feels ownership and enthusiasm." - *Leslie Goff*

PETER G. W. KEEN

# Ensuring e-trust

**THERE'S ONLY ONE THING that can slow down the Internet and e-commerce growth surge: a loss of confidence among customers about the protection of their privacy and the security of systems. To date, there have been surprisingly few safety problems with online business.**

While there are plenty of hackers and crackers causing damage and creating worries about spam, fraud and the misuse of customer data in cookies, all in all, the online world has been safe enough.

But what happens if that changes? Already in this new century, there are plenty of warning signs of problems to come — and they may come very soon.

Internet business success requires alliances between business and technology groups: between marketing and information technology for customer and revenue growth, because customer relationship management is high on this year's agenda; between operations and marketing to ensure process integration in such areas as order fulfillment; and between operations and IT in handling network scalability, for example.

And for customers to trust their online relationships with a company, there must be a major alliance between IT and the financial control and audit function. Yes, IT needs to build proactive links and conversations with the green-eyeshade crew, and the accountants will have to deal with the techies.

*A new alliance between IT and financial control and audit must be made.*



This alliance is needed because there has to be a clear organizational responsibility for ensuring a safe and trusting customer relationship. Financial control and audit have expertise and authority in key areas of security, information access and privacy and the processes for monitoring, controlling and enhancing these critical elements of the trust relationship. IT has the technical expertise and understanding of risk management. It's time for them to get together, because we're entering a potentially dangerous era in regard to customer safety and confidence in e-commerce.

Here are the warning signals: The first is the series of coordinated attacks last month that pumped a gigabit-per-second of messages into the systems of leading e-commerce players, including Yahoo, eBay, ZDNet, Buy.com (apparently timed to coincide with that firm's initial public offering) and Amazon.com. It's likely that we'll see plenty more attacks on a very large scale with publicly visible results.

The second warning signal was the news that DoubleClick and other firms that collect customer information and route it to retailers and manufacturers are able to go well beyond cookies in associating just about any transaction or query with a specific person. This may be the dark side of customer relationship management, and there's a growing and fairly widespread concern about threats to privacy. Just as with security, where there's a conflict between openness of access and tightness of control, there's a conflict between personalization of service on the one hand and privacy and anonymity on the other.

I don't see all of this as a crisis. Indeed, it's the job of IT and the financial control function to make sure it doesn't become one. That requires a real dialogue.

I recently co-authored a book, *Building Electronic Commerce Relationships: Trust by Design* (Prentice Hall, 1999). I thought I had a pretty solid grasp of the security and privacy issues — firewalls, encryption, filters, authentication, public keys, blind signatures and the like.

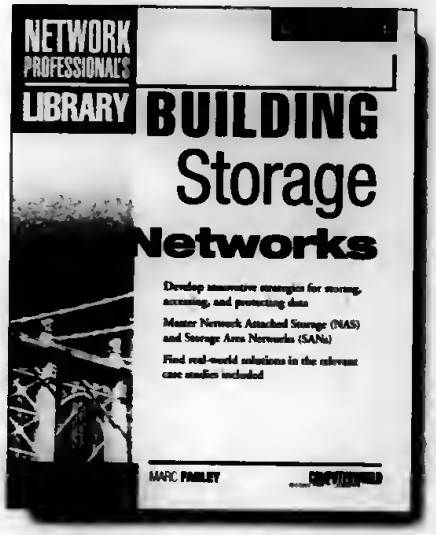
Writing the book showed me how very little I really know about process design for customer safety, information protection and transaction integrity. I had a lot to learn from my co-authors, particularly Sally Chan, manager of IT audit at the Royal Bank of Canada. Safety is in the details. From my talks with a number of IT and audit professionals, I'm sure that's the case in general with them.

A new alliance between IT and financial control and audit must be made. The foundation of e-commerce is in building and maintaining trusted relationships. To put customer confidence at risk is to put every element of your company's online business strategy at risk.

*Author and consultant, Keen is chairman of Keen Education. He can be reached at peter@peterkeen.com. His book* Dot Com to Dot Profit *is scheduled to be published in June by Jossey-Bass.*

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COMPUTERWORLD BOOKS FOR IT LEADERS

# Four new IT leaders share what they've learned in their roles. The bottom line? They love what they're doing, in spite of how tough it can be.

By Gary H. Anthes

IT'S HARDER than they expected — too many people to deal with, too many projects and too little work being accomplished. That's a common litany voiced by information technology professionals who have recently moved into leadership positions.

Despite these complaints, four fledgling IT leaders interviewed by *Computerworld* are succeeding in their new roles. The unifying theme, and a key to their success, is a love for their work. "I'm having a great time," says one.

**DAN TESENAIR** "Since I've been in this position, I feel like I've never worked so hard in my life and gotten so little personally accomplished," says Tesenair, coordinator of corporate systems at Health First Inc. in Rockledge, Fla.

But, he explains, his accomplishments at the health care organization are measured against the yardstick of his team's achievements. "What's changed my mind-set," says the former network engineer, "is getting things accomplished through other people. I didn't expect it to be as difficult."

Tesenair says a major part of his job is to constantly juggle and adjust the priorities of his 10-person team. "There are certain services our management or board wants us to provide," he explains. "They're reading magazines and want to get cool things out to our customers. But there are certain back-end things we know we need to get accomplished just to keep the network healthy. It is a triage process."

In addition to doing the triage, Tesenair says a key part of his job is "removing the roadblocks" that hamper his team's progress.

Strong technical skills and an ability to communicate well were factors in Steve Shim's choice of Tesenair for the management position he has held for six months. Shim, director of technical services and Tesenair's boss, says, "The other thing was his motivation. Dan enjoys what he does, and his motivation is infectious, to say the least."

Tesenair advises IT professionals moving from technical to management positions to let go of old work habits. "As a technical leader, if there was a problem with a system, my first response was to scoot them out of the way and sit down at the terminal and fix it myself," he says. "Now, as a manger, it's difficult to take the time to do that, and I want to show folks that I trust them to do things on their own."

**LAURA OLLE** Recently appointed co-CIO at Capital One Financial Corp. in Falls Church, Va. [News, Feb. 28], Olle has three pieces of advice for IT professionals stepping into new leadership positions: "Listen, listen and listen some more."

Olle says she likes to get out of her office to visit her colleagues and staff, so she's finding it difficult to manage people remotely. "I'm a big interpersonal person, and I have to learn how to manage when people are in Boise and Seattle and the U.K.," she says.

Olle, who was hired in October as a senior business information officer — a new position at Capital One — from a senior IT post at McLean, Va.-based mortgage firm Freddie Mac, led 600 development people among a total IT staff of 1,700 before her recent promotion. "Systems development was a bunch of silos, and no one was looking across the silos for reusability, best practices, sharing of staff, sharing of tools and so forth," she says.

Leadership is pulling together the silos and "seeing where we can share things across the organization," says Olle, who spends about half of her time with IT people and half with the credit-card company's senior business managers. "I am trying to move from a customer relationship to a true partnership," she says.

"Laura is my partner and my primary interface back into the IT organization," says Marge Connelly, the other co-CIO at Capital One and the former senior vice president for domestic card operations. "We share some common accountabilities for the success of our business — for growth and profitability."

Connelly says Olle is "extremely open and collaborative with me. She's a very energetic person and has a highly passionate presence. And she has a way of cutting through the clutter and getting directly to the point."

As for occasional disagreements between the IT and business people, Olle says it's her job as a leader to help resolve them. "I think a certain amount of conflict between the two groups is good, as long as you put it on the table and talk about it," she says.

Olle also advises leadership newbies to be humble. "It's dangerous to walk into an organization and assume you know the answers," she says. But remember to "have fun," she adds. "Part of leadership is having a passion for what you're doing."

**TIM BOSCO** can be called an IT leader even though he's not an IT professional. He's a controller assigned to the IT organization at Nationwide Life Insurance Co. in Columbus, Ohio. He says he lives in a "matrix" world, reporting to Nationwide's corporate controller and to its CIO.

Bosco was promoted to his post — a new one at Nationwide — from a financial analyst position in IT a little more than a year ago. His job is to help 40 to 50 IT managers understand and deal with the financial aspects of their jobs. "They look to me for financial leadership. They expect me to understand what they're doing and advise them on the treatment of costs, how they can secure funding and things like that," he says.



**NATIONWIDE'S TIM BOSCO has made "major changes" in time management: "I have to be more careful about what I take on," he says**

Bosco's leadership becomes critical twice a year when management calls on IT to defend its financial performance and justify new funding requests. "I'm the finan-

# IT Early Lessons in Leac



cial representative in those meetings, and what we're looking for [are] creative ways to fund projects," he says.

According to Bosco, the cornerstooe of his accomplishments so far has beeo to bring order out of chaos in IT accounting. "When I first started at the company, IT expenditures were inconsistently accounted for," he says. "People knew the company spent large amounts on IT but didn't really understand how much or what value they were getting from that investment."

As a result, Bosco developed IT accounting methodologies and benchmarks to compare new projects with past projects and those of competitors.

"What Tim was able to do in a very short time was to gather all the techoology expenses and create what I call 'technology statements,' whicb basically tell us what each business unit is spending on technology," says Nationwide's CIO, George McKinnon. "Now we can start to make better decisions about how to allocate these dollars."

Asked if the technology statements detail benefits as well as costs, McKinnon laughs. "In many cases, it's lack of benefits," he says. "Now we can highlight where we're spending big dollars and ask, 'Is this really an investment that will differentiate us in the market?' "

Of his new job, Bosco says, "I didn't really anticipate that I'd encounter so much direct interaction with such a wide variety of people. It's made me make major changes in time management. I have to be more careful about what I take on."

**KARIN HEMPEL** In December, Hempel was promoted to vice president of Internet trading development at Charles Scbwab & Co. It was her third promotion in three years at the brokerage. Now, she says, she's in a position that in some ways gets too much respect. "When you get to be a vice president, it seems like a lot of people look at you differeotly," Hempel explains. "When I say something, all of a sudden it's, 'Oh, she's got the answer,' when I don't."

She has to he more careful now, she says. "Part of my learning is trying to recognize the role I play and understanding that I still want to encourage people to come into my office and yell at me if they want to," she says.

Hempel encourages an open-door policy, gets out to meet new employees and takes her employees to lunch. "I want people to see me as a persoo and talk to me off-site so they'll be more likely to talk to me on-site," she says.

Hempel says she worries that she comes across as "opinionated" at times. But Vincent Phillips, senior vice president of active investor technology at San Francisco-based Schwab, says that's not a problem. "She's really good at not coming across as in-your-face, but still being able to hold her grouod," says Phillips.

Hempel says pulling back from day-to-day details in order to set strategic direction for ber 20-person group has been harder than she expected. "I'm used to understanding all the components at a tactical level, and I find I have to distance myself, but then I feel like I'm too far away," she says.

But hiring two good people to support her helped her pull away from the details. "If you bring in smart people to [help you] do your job, you are able to go and do something else," she says.

Hempel also turns to her boss for guidance. "When you make a leap [into senior management], you're really expected to do more influencing, and that's a whole different thing from day-to-day delivery," she says. "So having a mentor who has the cootacts and knows the political battleground can be a big help." ◗

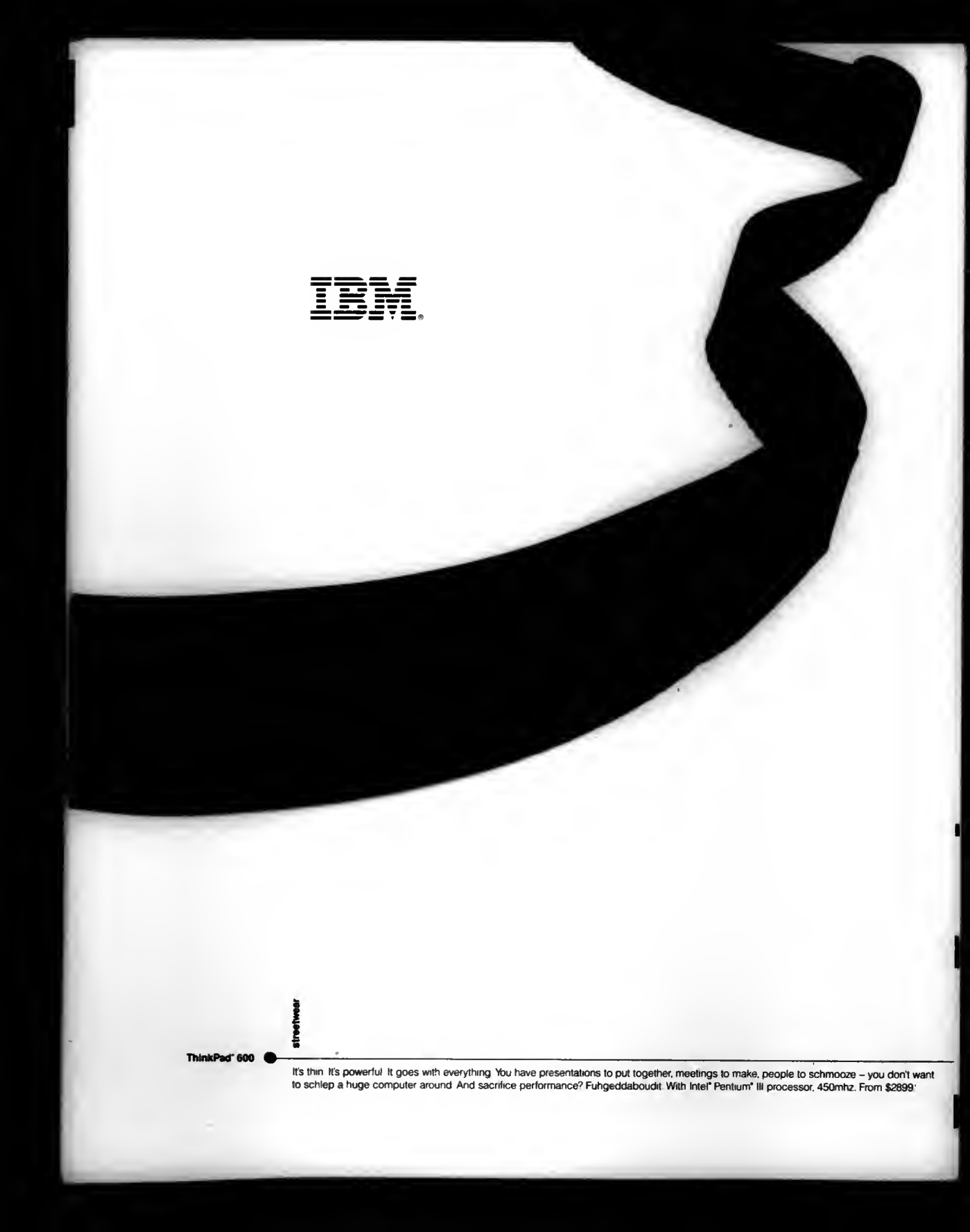
## Five Habits of New IT Leaders

1. Realize that your performance will be measured by the accomplishments of others.
2. Concentrate on removing roadblocks from the paths of your subordinates.
3. Listen, listen and listen.
4. Don't assume you know all the answers.
5. Have fun.

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**Veteran IT managers** offer their advice to the rookies.

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# In the Web Lab

**When you have some of the most demanding users in the world, you sweat the small stuff. Here's how one e-commerce start-up spent $1 million to bullet-proof its Web site before its launch today.**

**By Gary H. Anthes**

IT WAS PAINFUL, a little like watching your child perform at her first piano recital. "The first one was difficult," says Meredith King, the marketing director at Request4Bid.com. "I was so scared."

It wasn't her child at the piano that had made King anxious; it was an external user having a go at her company's new Web service about four weeks prior to its official public launch. He was the first of nine people who would visit the usability laboratory to put the Web site through its paces as King and a half-dozen other observers watched from behind a one-way mirror.

The objective: to ferret out every bug, bottleneck, wart, garble and glitch before exposing the service — a site for corporate buyers of computer hardware — to the onslaught of demanding, impatient and sometimes clueless users. King has insisted that the site he so intuitive to first-time users that any click oo the Help button or any glance at the list nf frequently asked questions is seen as a sign of failure.

Bellevue, Wash.-based Request4Bid.com makes its public debut today at *www.request4bid.com*. It's an online "reverse auction," which means it's the sellers who bid, not the buyers. Informatioo technology buyers post their hardware requirements, and suppliers submit bids to meet the requirements. The company aims tn create an efficient marketplace by reducing the time buyers and suppliers spend finding one another, determining prices, settling on terms and executing their transactions.

## Development Services

Request4Bid.com turned to Xcelerate Corp. in Fort Lauderdale, Fla., for help in developing the Web-based auction service. Xcelerate provides soup-to-nuts e-commerce development services, including market research, strategy formulation, software development and integration and usability testing. The Web service was built by Xcelerate from an nnline auctinn application framework from Moai Technologies Inc. in San Francisco.

At Xcelerate's e-Business Supercenter in Atlanta, King is joined on the dark side of the nne-way mirror by the Xcelerate project manager, a data logger who records how long it takes to perform various functions and a computer/human interaction expert who watches everything from the tester's facial expressions to how he moves the mouse.

"As the usability experts, we'll focus on the negative reactions, because we are looking to improve the software," says Daryl Ohrt, Xcelerate's human factors expert. "But the developers and the clients will focus more on the positive responses because they have a lot invested in it."

Request4Bid.com and Xcelerate scoped out the characteristics of the two types of users — IT managers and purchasing agents — who are most likely to use the Web site. Xcelerate then found people nn the outside who fit those demographic profiles and brought them in for paid testing sessions lasting two to four hours.

## Testing the Site

On the day nf the tests, a man with a soft British accent spends two hours walking through six Request4Bid.com functions, such as registering as a buyer, creating a quote and updating the vendor profile. He's instructed tn verbalize his thought processes and actions as he goes alnng, and he writes down his own comments after each task. He's watched inteotly through the one-way mirror, and his keystrokes and mouse clicks show up nn three computer screens in the observation room. If he asks the applicatioo expert seated next to him for help, those "assists" are logged and tracked.

The tester is also videotaped, and his voice and keystrokes are recorded. The recordings and timing data will he dissected in detail here, and King will take them back to her office for further study. When the tester wonders out loud how he can update a file before he has created it, Web developers realize the buttnn that's giving him a problem should he labeled "Create/Update" instead of just "Update."

The tester is building a request for bids for Hewlett-Packard Co. disk arrays, and he says he's very concerned that vendors get his configuration specifications exactly right. He says be'd feel more comfortable if each specification had its own data field on the Web page, rather than one free-format area called Configuratinn Notes. Request4Bid.com developers decide to add two fields just for data about the nperating system and firmware.

Ohrt says the nriginal version of the Request4Bid.com service used three Web pages to build a vendor list —

something that could have been done on just one page, saving the time required to load two additional pages and half the user's mouse clicks. He says it was probably done first with three pages simply because that's the way engineers thought of the process.

Ohrt says Web designers should — but often don't — ask and answer three questions: Who are the users? How do they work? What are their goals? For example, if users are likely to be older people, use larger fonts and greater color contrast for weaker eyes, he says. If the site is likely to be used by people on the road, keep bandwidth requirements to a minimum, be advises.

As for goals, Ohrt says Request4Bid.com may be used to procure an HP server, but there are important secondary objectives as well. "Your goal may also be to impress your boss with how much money you saved," he says. For that reason, at the end of the buying transaction, Request4Bid.com reports the list price of the HP server, its generic discount price, its average auctioo price and the price the user paid.

Ohrt says the error he sees most ofteo is designers putting so much graphical content on pages that performance suffers. Sometimes, he says, Web developers are just in too much of a hurry. "No one would ever build a washing machine without going out to see what consumers want in a washing machine," be says. "But developers do that kind of thing with their Web sites."

Computer usability expert Jakob Nielsen, author of the just-published book *Designing Web Usability: The Practice of Simplicity*, says companies putting up Web sites fall into three categories. Most do no usability testing at all. A few do "voodoo" testing, which involves the use of automated tools that give misleading results. And a "vanishingly small minority" of companies do usability testing in a way that really works. Request4Bid is in the last group, says Nielsen. Too often, be adds, Web sites are designed to please their developers or their developers' bosses, oot customers.

King, who is a former computer buyer, oot a technical person, says the Web site was carefully constructed to be understandable by both types of users. "People in the IT department and purchasing department have very different perceptions and mind-sets, but the feedback from both types of testers has been consistent," she says.

For example, King says, the testers consistently found fault with the placement of buttons near the bottom of the Web site's search page, which forced users to scroll down from search results at the top, where their eyes were. They said, "Don't make me look down at the corner," she recalls.

### Doing It Right the First Time

Request4Bid's concern over usability minutiae runs counter to one school of thought that says it's better to just get an e-commerce site up quickly and worry about the details later. "On balance, I believe getting big fast is more important than getting it perfect," says Thomas R. Eisenmann, who teaches a course on e-commerce management at Harvard Business School in Boston.

But business-to-business e-commerce must set higher standards than business-to-consumer e-commerce. "Our customers woo't tolerate a sloppy process, and we can't have site crashes," says Request4Bid President Doug Beighle. "B-to-B is less tolerant than B-to-C, and we'll be in one of the least tolerant of all industries."

He says users who are buying for their companies are more risk-averse than those buying for themselves, so a business-to-business Web site has to be seen as reliable, secure and user-friendly, or it won't be used.



EVERY MOVE IS SCRUTINIZED at Xcelerate's test lab, as Request4Bid.com prepares for outside users at its Web site



USABILITY TESTING of Web sites, such as that done by Xcelerate, focuses on designs that are friendly to e-commerce, rather than those that are pleasing to internal managers

## Idea First, Company Second, Web Service Third



**Request4Bid.com CEO Doug Beighle** (left) says he got the idea for a reverse auction for computer hardware while driving one day last September. He was CEO of **Computech Systems Corp.**, a Hewlett-Packard Co. reseller in Kirkland, Wash. "We had a number of our customers say, 'Couldn't you help us buy everything, kind of become our buyer's agent?' "

Beighle left Computech to start Request4Bid and began working with **Xcelerate** in October. He says he selected Xcelerate, founded in 1997 by a former executive at Andersen Consulting, because it's a partner of **Moai Technologies** in San Francisco and he felt the Moai development framework was perfect for his needs. And he says Xcelerate's location was a plus because competition for talent is so fierce in the Seattle area. "Atlanta does not have dot-com fever the way Silicon Valley or Redmond do," he says.

Beighle says Request4Bid spent $1 million getting its Web site developed for today's launch. The funds came from individual investors, or "angels," but a second round of financing is likely to come from a venture capital company.

Request4Bid couldn't have come so far so fast without Xcelerate's "thought leadership in e-commerce," Beighle says. But he says his reliance on Xcelerate for usability testing will soon diminish, even though Request4Bid's services and Web site will continue to evolve rapidly. "There will be an advisory board with customer representatives," he says. – *Gary H. Anthes*



# In the male-dominated culture of Silicon Valley, female IT workers say that they have to walk a very fine tightrope to be treated as equals. By Kathleen Melymuka

## PART ONE: Better Be One of the Guys

AT A MEETING of senior-level product strategy team members at Sun Microsystems Inc. in California's Silicon Valley, one speaker spices his comments with an obscenity. He suddenly stops, turns to the only woman in the room and says, "Oh, I'm sorry. Excuse me."

There is silence. The woman is flustered. She feels she can't win. If she laughs it off, she's coarse; if she doesn't, she's not one of the boys. Either way, the incident serves to reinforce her otherness.

"Those are moments," she reflects later, "when you say, 'I am the only female, and they do notice.' "

Women in information technology say the cultural bias in Silicon Valley is like the constant, quiet drip of a faucet that finally drives you nuts. "Women have to walk a fine line," says Beverly Ulbrich, the woman in the meeting described above. "If they're too soft, they won't be noticed, won't be listened to, won't get the promotion. On the other side, people will be offended if they're too aggressive or outspoken. I've felt that pressure all my career. It's a horrible pressure to deal with."

Ulbrich, who has worked in IT and IT marketing in Silicon Valley for 16 years, is now a senior vice president at Brightware Inc. in Novato, Calif.

She and other IT women say the cultural bias they face in the Valley is more insidious — and therefore more difficult to fight — than the blatant sexism of years gone by, when they were expected to make coffee and answer the phone for male colleagues.

Silicon Valley culture developed without much input from women, says Marcia Linn, who teaches technology at the University of California, Berkeley. "The culture seems to reinforce some tendencies and behaviors that have often been uncomfortable for women," she says. "There's a feeling of being an outsider."

"Visually, you see it," says Mary Shannon, a manager in IT services at Amdahl Corp. in Sunnyvale, who has worked in the Valley for 10 years. "Executives and managers [are] mostly white males. Even the stock portfolios have photos of males."

"The stereotypes are so rampant," says Kristine Hanna, who began her career in technical production and later founded GirlGeeks Inc., a San Francisco-based Web community for IT women. "I was frequently singled out as the only woman. That's why I started GirlGeeks — to say that you can be a smart, sexy woman and work in IT."

"The culture judges men and women on the same standard, only the standard favors men because the 'good stuff' is what men do better," says Marilyn Hollinger, director of ease-of-use architecture for the server technologies division at Oracle Corp.

For example, many women have more of a community or family orientation, so they tend not to work as many hours. But in the Valley, "you're not seen as dedicated if you're not at your desk at 7 a.m.," she says.

"There's just more male energy, more male leaders, more men at the top, from the board of directors to the senior management team," Ulbrich says. "Expectations are based on how men might react or interact."

"The culture is guys," agrees Hollinger. "Then they heap on top of that the culture of long hours." As a result, there's one way to do things in the Valley: "To be successful, you have to do it the male way," she says.

"You're expected to be much more assertive than a lot of women are comfortable with," Hollinger adds. "And if you're not, you lose. For example, a woman may say, 'Well, have you considered this?' while a man says, 'I think we should do this,' " she explains. "Even though they're saying the same thing, the woman comes across as less sure of herself."

These attitudes come up again and again in the kinds of environments that make and break careers, these women say. It happens in meetings about hiring and promotions, where men "go with their guts" and promote the people they feel comfortable with — other men; in staff meetings, where women tend to hold back because they feel their minority status will magnify any misstep; and in informal conversations, where the real business of business

> To be successful, you have to do it the male way.

# IT Women i

happens — and women are frequently excluded.

For example, women say groups considering new hires or promotions are always slightly more critical of women. A female candidate for a promotion will be deemed not ready because of a minor fault, while the attitude toward a comparable man is, "He's a good guy. Let's give him a try." Hollinger adds, "It's not done consciously, but the man will be hired."

"Women have to be honed to perfection," Ulbrich says. "Guys can have faults."

The culture forces many women to develop survival strategies. "It's better to go behind closed doors and scream and even cry, rather than show your emotions to the wrong individual," Ulbrich says.

In fact, many problems are the result of nothing more sinister than human nature. For example, Shannon notes that the natural tendency for men to hang around with other men means women miss out on informal mentoring and other opportunities.

"Often, things start with casual conversations," she says, "and those impromptu things don't occur as frequently between people of opposite sexes."

Ulbrich recalls a team meeting with five male colleagues that broke up prematurely when the team leader said, "Let's continue in here," as he walked into the men's room, followed by the other four men.

Sometimes, even men's best intentions work against women. Shannon explains that some men try to shield women from trouble out of misplaced chivalry.

"If they have to tell a woman bad news, they don't come to the point; [they] don't hit hard," she says. "With a guy it would be — Boom! 'This is where it's at.' " As a result, women may end up blindsided by a bad review or a missed opportunity.

The culture takes a toll, according to Hanna. "Women feel more isolated," she says. "They're afraid to ask questions because they may be the only woman in the room."

This isolation and stress leads to women's exodus from IT. "If I were half as assertive and arrogant as the guys I work with, I'd be out of there," Hollinger says.

"The expectation is that women are nicer, but if you're too nice, you're not seen as success material," she continues. "It's an awfully hard line to walk. A women is constantly battling against her nature vs. what is expected. That's why you see this whole midlevel flight of women from high tech."

## PART TWO: Stop Whining - Get to Work

There's no tightrope in Paula Camporaso's life. "That's not a good use of your energy," says the vice president of IT at Legato Systems Inc. in Palo Alto, Calif. "You have to feel comfortable [so] that you can be successful. If you don't feel comfortable in your own skin, you're not in the right place."

She doesn't deny that there are tough corporate cultures in Silicon Valley, but "that doesn't mean it's the norm," she says.

Camporaso, who has worked in the Valley for 22 years, says the attitudes women bring to work may color their experiences. "A lot of people create their own reality through their own perception of disadvantage," she says.

Deborah Woodcock, product manager at ACCPAC International Inc. in Pleasanton, Calif., agrees. "Women who perform are rewarded here more than in any other place I've observed," she says.

Woodcock, who has worked in the area for almost four years, says she's been offered great opportunities. She says fierce competition and Internet time force the IT culture to be a true meritocracy.

"In this business, if you see someone that you think can perform, you move them into the area where they can do the most good," she says.

Still, even the dissenters admit that there are lingering problems for women in the Valley. "It's still very difficult for women," says Eva Chaing, chief technology officer at Trend Micro Inc. in Cupertino, Calif. "The tremendous working hours and pressure are much harder for a woman trying to take care of the family."

> Women who perform are rewarded here more than in any other place.

Woodcock acknowledges that her outlook might be different if she were unable to make the commitment that's required for success in the Valley. "I don't have kids, and my partner [and I] make allowances for each other," she says. "If I'd been a mom, I'm not sure I could give my all to the company, and I might have to turn [opportunities] down."

Camporaso says that perception is reality. "Inasmuch as people have a perception of a problem, something needs to happen [to] solve it," she says.

Chaing says something is happening — the huge growth of the IT industry during the past two years has raised women to new heights in IT management. "I'm seeing a lot more women in management positions, so there are a lot more role models for women," she says.

Camporaso says IT women can solve many of their problems by changing their own attitudes. "You have to stop being focused on what people think of you and think instead about how to make people successful," she says. "When other people sense you're there to make them successful, they don't care about your gender."

Woodcock says women need to stop feeling like victims and take responsibility for their careers.

"You can be unhappy anywhere, and maybe you can't be happy everywhere," Woodcock says. "But a lot more people could be happier if they took more responsibility for their own development."

## Words to the Wise

**WORD TO THE MANAGER**

**IT women in the Valley offer the following advice to managers:**

- Realize it's intimidating to be in the minority. Be patient and encouraging.
- Question what you do and whether you have an unconscious gender bias.
- Examine the criteria against which you measure people. Make sure they are objective and gender-neutral.
- Understand that when women sound tentative and men sound confident, it may be more a matter of style than substance.
- Look for the potential in women and help them develop confidence.
- Seek opportunities to mentor women.
- Be flexible. Promote working from home as a way for employees to balance family and job.

**WORD TO THE FEMALE WORKER**

**IT women in the Valley offer the following advice to women:**

- In job interviews, ask about everything from work hours and after-hours socializing to the criteria for performance appraisals. Ask women and men how they treat each other.
- Find a company where you're comfortable being yourself.
- Don't think you're alone. Network with other professional women and join IT women's groups.
- Make friends you can trust and use them as sounding boards.
- Get training in areas such as communication and negotiation skills.
- Talk to everyone. Ask questions, listen and pay attention.
- Get as much input as possible from peers, bosses and subordinates.
- Don't wait for things to come to you. Be assertive and initiate projects.
- Don't get obsessed with perceptions of sexism. If you second-guess everything, you'll waste energy.
- Don't set or accept any limits.

# n Silicon Valley

KATHLEEN MELYMUKA/MS. MIS

# A millennium agenda for women in IT

THE START OF THE new millennium (or the close of the old one, if you prefer) seems to be a good time to take stock of where women in IT are and where they'd like to go. So I rephrased the old Freudian question and asked a cross-section of readers: What do IT women want? Responses came from programmers, project managers, systems managers, technicians, academics and consultants. Most responses were the all-too-familiar complaints of a minority that still sees itself as undervalued — and is getting pretty darn tired of it. As a project-manager-turned-teacher put it: "After 30 years in the industry, I am a little tired of seeing the same problems."

But looking at the list of responses, I'm convinced that a lot of the things IT women want are the same things IT men want. And if people want the same things, at least some of those wishes are more likely to become reality.

Herewith, an IT women's agenda for the millennium:

Aretha had it right: **R-E-S-P-E-C-T** is No. 1 on IT women's wish lists. This is nicely illustrated by a man who wrote to say that his wife, an engineer, was expected to keep up on her design work while answering the office phone and filling in when the secretary was at lunch.

Hard to believe that kind of stuff is still going on, but a depressing amount of what IT women want is the same stuff they wanted five, 10, 20 years ago. One presented a laundry list of familiar complaints: "not being taken seriously, lack of respect, lack of role models, lower pay, long hours, being passed over for promotions and bonuses and fighting the uphill battle constantly."

Can't you just feel the fatigue?

That's why another reader, "at the risk of sounding sexist," wants **"more women!** Women co-workers. Women managers. Women programmers. They are just as technically capable as men [but] so much easier to get along with!" she says. "They communicate better. They listen."

The dearth of women in IT — and the subsequent isolation that many women in IT feel — may be why another reader's wish list includes some mentoring. "I would love to talk to [someone about] the pros and cons of pursing the technical career ladder," she says.

The best things in life may be free, but women want money. **"Financial parity,"** says one. "Compliments and high performance ratings no longer cut it: Show me the promotion."

Women in IT want to reduce the stress in their lives (can men relate?), so they'd like to see **more flexibility.** "A mix of telecommuting and office hours would make it easier for me," says one. She says she would even be willing to give up some salary for reduced working hours.

Women would also like to see their companies **help with the work/life balance** by bringing some services, such as banking and basic health care, onto the corporate campus. "That would help me accomplish some of the other many things I have to do in a day besides work," a reader says.



KATHLEEN MELYMUKA IS A *Computerworld* features writer. Contact her at kathleen_melymuka@computerworld.com.

Many feel undervalued, and some are willing to put their paychecks on the line to prove it. "Wouldn't it be nice to get paid by the amount of quality work you produce?" a woman asks. "I would like to see a company pay for output."

A project manager would like to say good-bye to those worst aspects of corporate culture that she says are exacerbated in the IT world: "The overreliance on jargon to keep others outside of the charmed circle; the singular approach to all problem solving with a logical, rational, Western, insular style; the belief that the organization exists to keep the hardware busy; and women not [being] viewed as professionals."

She's also had more than enough of corporate warfare. "I have seen project managers approaching projects as a war metaphor, with the clear expectation that there will be a winner and many losers, intent on taking no prisoners, accepting casualties as acceptable losses, and executing anyone questioning the 'plan,' since that must be insubordination," she says.

Women would like to see more recognition for peaceable projects that go right and fewer kudos for cleaning up war-torn disasters. I suspect men would agree.

Finally, IT women would love to see **the end of Ms. MIS.** Says one: "I would like to see that you don't have to write this column in the future, because it won't be such a rarity for women to be in IT!" ▶

# CONFERENCES

**■ SPRING INTERNET WORLD 2000**
*Los Angeles Convention Center, April 3-7*
Anything related to the Internet and e-commerce.
**COST:** $525 to $1,495
**CONTACT:** Penton Media Inc. in Darien, Conn., at (800) 632-5537 or (203) 226-6967; fax: (203) 226-6976
*www.internet.com/registerspring*

**■ SYSTEMS THINKING: SUSTAINING COMPETITIVE BUSINESS ADVANTAGE**
*Hyatt Regency, Cambridge, Mass., April 4-7*
Building skills in management and leadership.
**COST:** $1,095 to $1,695
**CONTACT:** Linkage Inc. in Lexington, Mass., at (781) 862-3157; fax: (781) 862-2355
*www.linkageinc.com/systems2000*

**■ SPRING SYMPOSIUM/ITXPO 2000**
*San Diego Convention Center, April 10-13*
More than 130 sessions on the convergence of business and IT.
**COST:** $2,395 for Gartner clients; $2,895 for others
**CONTACT:** Gartner Group Inc. in Stamford, Conn., at (800) 778-1997 or (203) 316-6757; fax: (800) 778-1998 or (203) 316-6774
*www.gartner.com/symposium*

**■ INTERNATIONAL INFORMATION TECHNOLOGY QUALITY CONFERENCE**
*Clarion Plaza Hotel, Orlando, April 10-14*
Ensuring quality in today's changing IT environment.
**COST:** $1,345 for Quality Assurance Institute members; $1,445 for others
**CONTACT:** Quality Assurance Institute in Orlando at (407) 363-1111; fax: (407) 363-1112
*www.qaiusa.com*

**■ AIIM 2000**
*Javits Convention Center, New York, April 9-12*
Learn about some of the technologies driving e-commerce.
**COST:** $1,295 to $1,395
**CONTACT:** Association for Information and Image Management International in Silver Spring, Md., at (301) 755-2603
*www.aiim2000.com*

**■ KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING CONFERENCE**
*Morriott Marquis, New York, April 11-12*
How to lead and derive value from knowledge management initiatives.
**COST:** $1,425 for Conference Board members; others $1,625
**CONTACT:** The Conference Board Inc. in New York at (212) 339-0345
*www.conference-board.org*

**■ CIMDATA 2000**
*Palm Springs Convention Center, Palm Springs, Calif., April 11-13*
Applying technologies and strategies to support business.
**COST:** $995
**CONTACT:** CIMdata Inc. in Ann Arbor, Mich., at (734) 668-9922; fax: (734) 668-1957
*www.cimdata.com*

**■ CUSTOMER RELATIONSHIP MANAGEMENT SOLUTIONS CONFERENCE & EXPO**
*Javits Convention Center, New York, April 11-13*
The latest perspectives and technologies in customer relationship management.
**COST:** $1,095 to $1,395
**CONTACT:** Advanstar Communications Group in Cleveland at (800) 265-5665 or (218) 723-9130; fax: (218) 723-9122
*www.crmexpo.com*

**■ STORAGE NETWORKING WORLD CONFERENCE & EXPO**
*Morriott Desert Springs Resort & Spa, Palm Desert, Calif., April 17-19*
For IT professionals responsible for storage networking.
**COST:** Before April 1: $895 for voting members of the Storage Networking Industry Association (SNIA); $1,095 or others. After April 1: $995 for SNIA voting members; $1,195 for others
**CONTACT:** Computerworld Inc. in Framingham, Mass., at (508) 820-8529; fax: (508) 626-8524
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# Value-Based Pricing

BY CRAIG STEDMAN

Most products are still priced according to what they cost to produce. But some manufacturers and IT vendors employ an alternative approach, using information technology to help estimate how much value a product would provide to the buyer, then basing its price on that value.

For example, one pharmaceutical maker priced a new antiulcer drug, but not by adding up the costs of developing and manufacturing the medication and tacking on the amount of profit it wanted to make, says George Cressman, a product pricing consultant at Strategic Pricing Group Inc. in Marlboro, Mass.

Instead, the company used value-based pricing techniques to justify a higher price than it might otherwise have been able to get from medical insurers. Its weapon: studies that showed the new drug could help patients avoid expensive surgery, which in turn would lower costs for the insurance companies.

The goal is to avoid setting prices above the ceiling of what someone will pay — and also to make sure you don't give away the store by charging too little.

The problem with traditional cost-based pricing approaches "is you don't know what value your product offers to customers," Cressman says. "You can end up leaving money on the table and not getting paid what your product is worth."

DEFINITION

**Value-based pricing** is a method of pricing products in which companies first try to determine how much the products are worth to their customers. The goal is to avoid setting prices that are either too high for customers or lower than they would be willing to pay if they knew what kind of benefits they could get by using a product. Data mining software can play an important role in the process by helping users segment their customers and define the value they receive.

## Pricing Strategies

Strategic Pricing Group is a consulting firm that helps corporations design and implement value-based pricing strategies. Its clients include companies in mainstream manufacturing markets such as chemicals, pharmaceuticals and metals.

Another client, a chemical company, based the price of its pipe-sealing gaskets on the cleanup costs and potential liabilities that buyers could avoid because of the products' ability to prevent chemical leaks and spills, Cressman says. He declined to identify either company.

Some software vendors, such as i2 Technologies Inc. in Dallas and Aspect Development Inc. in Mountain View, Calif., use value-based pricing. Their software license fees depend on the amount of internal savings that individual customers expect to get by using the applications — a figure the two sides try to determine during a presales consultation.

To assess a product's value for one of its clients, Strategic Pricing Group starts by conducting in-depth interviews with a set of the manufacturer's customers that are similar to one another — sometimes eight to 10 companies, sometimes "significantly more" than that, Cressman says.

Each interview can last as long as two hours. Shorter surveys of customers are usually too superficial to produce the detailed information needed to "show them what impact [a product] will have on their business and what it's worth to them," he adds.

But on the whole, value-based pricing is still pretty rare. A recent survey suggests that only about 10% of companies use the approach, and even that "might be a generous assessment," Cressman says. "There are very few companies that are doing this right now."

Part of the reason is that value-based pricing can be difficult to sell to customers, who may be wary that they'll end up paying nosebleed prices rather than amounts based on what it cost the manufacturer to make their products. "People have an emotional problem with the idea of having the price be almost incessantly variable," says Jim Shepherd, an analyst at AMR Research Inc. in Boston. "A lot of [buyers] just have a gut feeling that they're getting screwed."

Value-based pricing sounds like a smoke-and-mirrors way to sell a product "for however much you can get for it," adds Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "To me, the emperor has at best a G-string on."

Figuring out the value of a product also isn't a simple matter. "You really have to start with an understanding of your customer, and that takes a lot of work," Cressman says. "Adding up your costs and putting a [profit] margin on top of that looks much easier and more precise."

## Technology's Role

While value-based pricing depends heavily on manual work, technology also has a big role to play.

Manufacturers that want to adopt value-based pricing approaches without trying to set individual prices for every buyer have to segment their customers into groups of companies with similar needs or patterns of behavior. Such a task calls out for data mining software with the ability to comb through databases and discover trends and characteristics that customers might share.

Activity-based costing software, which helps users gauge the cost of individual business activities such as making a product or processing orders, can also be a useful tool. "You don't want to let the costs drive your pricing, but you do need to know whether you're making money," Cressman says.

Airlines and hotels are the businesses that come up first in any discussion of value-based pricing, but Cressman and Shepherd say that's something of a misperception of the concept. For example, the dizzying array of ticket prices charged for the same flight are determined by sophisticated yield-management techniques meant to fill as many seats as possible while maximizing the revenue that the flight produces.

That certainly can increase a flight's value to the airline, but Shepherd says it isn't really a case of value-based pricing from the customer's perspective. The justification for the high prices that last-minute travelers have to pay is "based more on their desperation" than on any real sense of how much taking the flight will actually be worth to them in financial terms, he says. ◗

## What's It Worth to You?

*Questions to ask in assessing the value of a product include:*

**Q:** How much money can customers save internally by using the product?

**Q:** Can the product help them increase sales or reach new customers themselves?

**Q:** Does the product give them a competitive advantage over their rivals?

**Q:** Does it improve the safety of the goods or equipment customers manufacture?

**Q:** Are there other products available that can provide the same benefits?

**Q:** How much time can customers save by buying instead of building the product?

## Resource Links

**Previous *Computerworld* articles:**

- *www.computerworld.com/home/news.nsf/all/99122151indepth* – A 1998 feature on companies using "smart-pricing" techniques to improve profitability

**Descriptions and explanations of value-based pricing:**

- *www.tmo9.com/tedcon/glossary/assetsmetrics/valuebasedpricing.htm* – Value-based pricing explained, with links to related terms, from a guide to setting up online marketplaces developed by Perot Systems Corp. in Dallas
- *www.gmarketing.com/tactics/weekly_117.html* – A primer on the factors that need to be taken into account when pricing products, from Web-based magazine *Guerrilla Marketing Online*
- *www.onlinewbc.org/Docs/market/mk_4ps_pricing.html* – An in-depth article on pricing fundamentals and comparisons of cost- and value-based pricing strategies, by the Online Women's Business Center

– *Craig Stedman*

■ *Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com*

# Are you both attracted and repelled by the Internet at the very same time?



***Read on to see how MCI WorldCom used VPN technology to help a pharmaceutical giant get comfortable with the Internet.***

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All of which made this pharmaceutical giant feel a brand new emotion: relief. For more information, just visit us at www.wcom.com/data.




*Only MCI WorldCom owns the entire network between many locations in the U S and Western Europe

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# "Dear Career Adviser

*I'm a competent applications programmer in C/C++, and I'm interested in low-level programming for embedded systems and device drivers. Can I fight my way into these kinds of positions with a degree in information systems, or must I go back for hardware-relevant computer science courses?*

— NOT IN THE DRIVER'S SEAT

## Dear Driver:

Essentially, it's a two-year switch to regain top footing. "Embedded software programming is mostly [in] C and becoming more C/C++," notes Jennifer Kopatz, an embedded software and firmware technical recruiter at Stormtec Search Recruiting in San Francisco.

If your C/C++ skills have been used in a 3-D background, the easiest path to device-driver engineering jobs involves promoting those skills to a multimedia company that's programming in Windows, says Kopatz.

Get two solid years of work experience on low-level device-driver development and take some courses in embedded systems and device-driver development. Additionally, acquire skills in real-time operating systems, particularly with Alameda, Calif.-based WindRiver Systems Inc.'s VxWorks.

With that sort of work experience and training, you'll be in the driver's seat for jobs in networking, audio/video, telecommunications, wireless cellular, switches, data communications, DVD or digital subscriber lines, which are all hot areas.

Don't let salary stand in your way if you want to make this transition, says Kopatz, because it's hard for a company to justify paying a higher salary to someone who's coming in and learning, reading books and doing all that's needed to get up to speed. Testing might be another way into device-driver work, but if you take that path, avoid getting pigeonholed as a tester if you truly want to do development.

## Dear Career Adviser:

*I'm an Oracle database administrator in the military, getting out in May. I sent my résumé to several headhunters in the Phoenix area. Now I have five who want to work with me, two of whom I trust. Since I haven't been in the private sector for almost 20 years, I want to avoid having five companies submit my résumé for the same job, but I also want to be sure I have an administrator job in Phoenix when I retire in May.*

— PRIVATE SECTOR-BOUND

## Dear Private:

You're correct. Only work with recruiters who know the companies you want to work for, and who are serious about representing you. Ask each recruiter these specific questions:

- Who, in their eyes, are placeable candidates?
- What do they see as your weaknesses, and what can you do about them?
- How do they prepare candidates for interviews?
- Do they know the companies and managers well?
- Will they check with you before they submit your résumé, so there's no overlap?

Finally, in return, you must be fully honest with them about your availability for and interest in the positions they find for you.

## Dear Career Adviser:

*As a networking engineer (Microsoft-certified systems engineer, certified network engineer and Cisco-certified network associate) with more than 10 years of experience in support and implementation consulting, I am a broad and strong generalist. My company now requires all networking engineers to become enterprise resource planning implementation specialists, with a little networking thrown in. But I would prefer to move into security, firewalls and routing specialization.*

*I have a year of solid introductory experience and have deployed seven or eight firewalls. I also want some time with my family. Will potential employers see me as an entry/midlevel security engineer? What do I need to do to move into the security/firewall area?*

— SECURITY CONSCIOUS



PEGGY GUITTEL is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

## Dear Security Conscious:

"The fact that you've deployed seven or eight firewalls gives you a good start, particularly if these were different and you've developed a good set of techniques for managing and configuring them properly," according to David Bonn, chief technology officer at WatchGuard Technologies Inc. in Seattle.

But being able to select between host-based firewalls is only one aspect of security.

You'll also need in-depth knowledge of e-mail encryption systems, such as Santa Clara, Calif.-based Network Associates Inc.'s Pretty Good Privacy and network antivirus software packages from companies such as Trend Micro Inc. or Symantec Corp., both based in Cupertino, Calif. Expertise in security-specific hosts and overall site security is also valuable.

"If a person had also configured and installed NAI Technologies Inc.'s Gauntlet and Cisco Pix, they could have my job," adds Bonn.

Your time constraints might prove problematic, since "security requires [around-the-clock] availability," cautions Mike Peronto, WatchGuard's chief operations officer, citing recent distributed denial-of-service attacks on Amazon.com Inc. and eBay Inc. ▶

# BRIEFS

## Gofish Hooks CMGI

Gofish.com Inc., a start-up business-to-business e-commerce seafood site, has a knack for landing the big ones.

Last week, the Portland, Maine-based company announced that CMGI @Ventures, the venture capital affiliate of Andover, Mass.-based CMGI Inc., has agreed to sink $12 million into Gofish. Last month, GE Equity in Stamford, Conn., and The CIT Group Inc. in Livingston, N.J., put up $20.1 million.

Gofish also last week added GoShrimp, GoCrab, GoLobster and GoSalmon segments to its site for one-click access to the most sought-after catches, but it's not the site's ease of use that's attracting attention.

Rather, said Jon Derone, an analyst at The Yankee Group in Boston, the company has figured out a critical piece of the business-to-business e-commerce puzzle – completing the financial terms of a sale at the Web marketplace.

Sellers receive credit information on the buyer before the deal is completed and can get insurance to guarantee the transaction.

GE Equity and CIT provide short-term financing that allows Gofish to pay the seller 80% of the net sale amount within two days and the balance in a month. That feature speeds up transactions and improves cash flow for sellers.

The seller pays the 1.8% commission charged on all transactions, which can be as high as $1 million, according to Peter Murray, chief technology officer at Gofish.

"To our knowledge, we're plowing some new ground industry-wide," Murray said. He added that he expects $20 million to $100 million in sales this year. Gofish.com had its official Web site launch in November.

## Folio Launches New Way to Buy Stocks

For those customers who don't want to give up control to mutual funds but don't want to spend time – and money – building up portfolios of individual stocks, Folio[fn] Inc. (*www.folioinc.com*) now offers prepackaged stock portfolios.

Customers can invest any amount – Folio allows fractional share ownership – and move stocks in and out of the portfolio.

The company expects full-scale commercial services to be available next month.

## Amdocs to Buy Select

In an effort to expand its market presence and software offerings, Israel-based Amdocs Ltd. plans to purchase Toronto-based Select Technology Group Inc.

Amdocs is a customer service and business management software provider for the communications industry. Select Technology Group offers Internet protocol billing and customer service software.

The deal, which is worth $1 billion in stock, is expected to close by the end of next month.

## Dive Into IT

Government and political leaders should take a hands-on approach to information technology projects and avoid efforts that entrench old work processes, according to a new report by Harvard University's John F. Kennedy School of Government.

The report, "Eight Imperatives for Leaders in a Networked World," advises government officials to take an active role in IT projects, while searching for solutions that "are not just an incremental quick-fix." The report is at *www.ksg.harvard.edu/stratcom/hpg/*.

# Can IT Managers Be Heroes?




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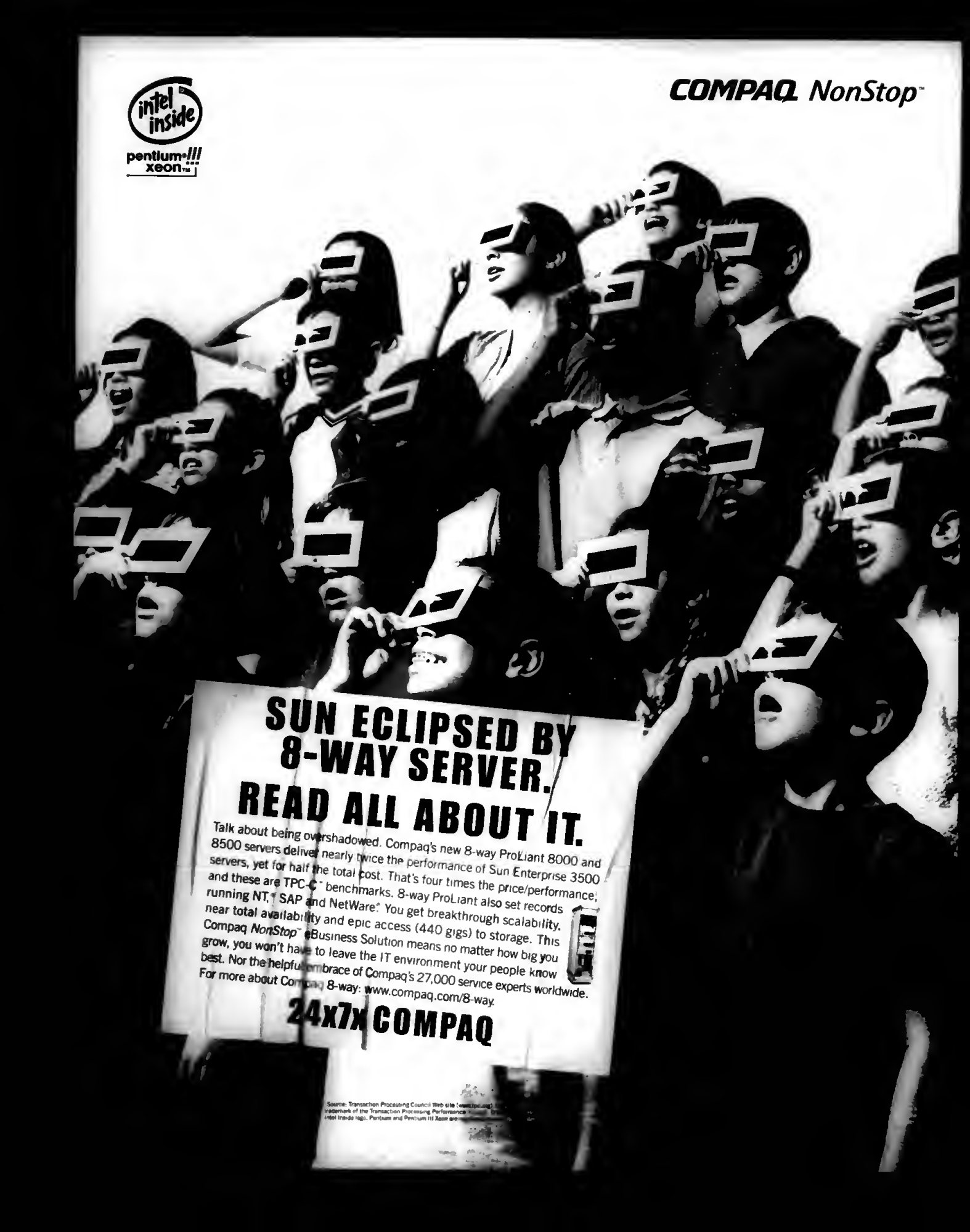
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# TECHNOLOGY



## MANAGING SECURITY

With fears of crackers on tbe rise, new security administrators are being thrown into their jobs without road maps. Beginning this week, *Computerworld* and the SANS Institute present the diary of a real security manager's first year on tbe job. Our aim is to help the author — let's call him Pat — and you solve corporate security problems. ▸ 64

## MONITORING EMPLOYEE E-MAIL

Like it or not, you may have to start monitoring employees' e-mail. The bad news is that playing Big Brotber can turn into a time sink. The good news is that employees tend to clean up their own acts when they know you're watching. ▸ 72

## CLOSE THE DOOR!

Improperly secured or unauthorized modems that are attached to private data networks can defeat network security practices and make companies vulnerable to backdoor attacks. As businesses concentrate on implementing Internet firewalls, some are also installing firewalls on their enterprise telephone networks. ▸ 67

## WHAT'S UP? NETWORK INFO

Ipswitch Inc. bas released Version 5.0 of WhatsUp Gold, its Windows network monitoring tool that's aimed at small and midsize businesses. ▸ 66

## PORTAL PLANS

Iona Technologies, long known for its Object Request Broker middleware technology, this week plans to release the first two pieces of its four-component iPortal Suite. ▸ 67

## QUICKSTUDY

Directories are an elegantly logical way of managing data specific to users and resources for an application. But they may be too mucb of a good thing wben it comes to managing lots of directories. ▸ 70

## SELLING 'FREE' SOFTWARE

How do you persuade users to pay for software they've always gotten for free? Message-transfer agent Sendmail became the most popular Web e-mail backbone around by going the open-source route. Its new company, Sendmail Inc., is hoping that enriched features and an easy-to-use graphical interface will convince users to buy. ▸ 78

## JOB WATCH

If you've run the gamut from back-office implementations to Web development and gained some project management and business process flow skills along the way, then you may be ripe for the position of Internet architect — a lucrative new profession in which people are earning as much as $125,000 per year. ▸ 81



# CREEPING OUT OF CHAOS

**VENDORS ARE** starting to adopt Web management standards such as Common Information Model and Web-based Enterprise Management. It can't happen soon enough for harried network managers. "Monolingual" applications could make the lives of those managers easier and cut costs of application development. So why are the standards being adopted so slowly? 74

# Tales of an Insecure Security Manager

*Week one: In which our self-taught hero is promoted and promptly screams for help — from you*

HI. MY NAME IS "PAT," and I just became the new security engineer at Western Textiles (not the company's real name), a.k.a. "Please hack our system because we have no security in place and I have no idea in hell what to do!"

That's pretty much how my new job is beginning, and if you're reading this, then I bet you, too, were just promoted into this position or hired because you knew more than the person hiring you.

Not that there is anything wrong with that. Our industry is in dire need of security professionals, and I hope that by sharing my trials and tribulations with you, together we can make our networks a safer place to conduct business.



Security Manager's Journal

## Completely Thrown

When I was first approached about moving into the position of network security administrator, I was completely thrown. I had been a network analyst/administrator for a little more than two years, doing light Microsoft Exchange work, PC installs, help desk, network connections and fixes and everyday server maintenance.

The biggest project I worked on was implementing a high-speed dial-up service for the company's 5,000 sales reps and managers. It was basically a yearlong effort to create an Internet service provider for the company. Everyone was satisfied. Then, in a recent security audit, a Big Five firm said it was impressed with the built-in security I had configured.

## Self-Taught

The only other major networking experience I have is some volunteer work, which involves networking hundreds of computers in a very short period of time. I learned everything from how to crimp cable to configure big Layer 2 and 3 switches like Cisco Systems Catalyst 5000 or Bay Networks Accelars.

So here I am with one week left before I move into my new office (with a window, I might add), and I thought I would take the time to introduce myself and give a little background.

Just so you know, the guy who held this position before me was at the company for more than 15 years, beginning back when they still had IBM keypunch systems.

About two years ago, he was asked what part of the network he wanted to head up since he had seniority, and he chose security and Web administration. Apparently, he was in over his head, or he just got complacent. Either way, he was asked to leave four months ago, after a security audit by the Big Five firm I mentioned earlier.

My company is more than 30 years old and does more than $500 million per year in business. Half the employees have been here since I began — I am definitely the new kid on the block. So if I have to step on toes as the security manager, it may be quite treacherous.

There is a high expectation on the part of my group that I will be successful in this position, so of course that only makes me nervous, because that might be why the other guy got fired — he couldn't or wouldn't dance the dance. We'll see. I am very hopeful.

To get a better feel for where I am starting, here's a brief look at the current state of our network security: To start, we don't have a clear security policy in place, only e-mail- and Internet-acceptable usage policies.

On our perimeter, we have a full T1 line connected to our Internet service provider via a Cisco 2514 router. We aren't sure whether we own the router, let alone the configuration of it! The router leads into our network into an x86 Windows NT 4.0 Service Pack 5 FireWall-1 Version 4.0 from Checkpoint Software Technologies Ltd.

Our policy for the firewall is one of "least access," meaning only e-mail and HTTP are allowed through. Coming from the firewall, we go into our proxy server, which is Microsoft Proxy Server 2.0 on NT Server 4.0 Service Pack 5.

I'll describe the firewall configuration in detail next week, but just so you know, we have all of our 2,000 local on-campus users being sent to the firewall as one IP address. In layman's terms, this means the firewall accepts requests only from the IP address of the proxy server, and the proxy server translates all the users' IP addresses to its own address before sending the packets out to the firewall.

## The Legacy Refrigerator

We still have some legacy stuff for our manufacturing plants, such as two Data General Corp. Aviion systems and a DG "refrigerator," which is basically a big Unix-flavor server for our distribution subsidiary. These are connected to dedicated leased lines and then to our network. We won't spend too much time on these, as the plants came to us through acquisition and are managed by DG.

Other than that, we have a copy of Internet Security Systems' Inc. Internet Scanner and all the usual hacker tools — both white and black hat (in other words, those created by either ethical or unethical hackers).

I will attend the Checkpoint class for the firewall, and then I will attend one of the SANS (System Administration, Networking, and Security) 2000 conferences, where I plan to absorb lots of new knowledge from just being around all those great minds.

This weekly column is designed to help both you and me, to let you know that everyone feels overwhelmed with the amount of information to digest. You could spend a year learning and reading everything and not spend even one second working on your current security policy or network security.

I'm writing this to help all of us wade through all that nonsense and help focus our studies on the tasks at hand — securing our networks against internal and external intrusion and destruction.

## Got Advice?

I really need expert advice to comment on what I say and how I secure my network. If you have real-world experience that could help, please send your e-mails to info@sans.org with the subject *Pat's Journal*.

I will also be extensively discussing my company's changeover to a new operating system, namely the deployment of Windows 2000 Professional.

This move gives our IT department the opportunity to secure the desktop and manage it without having to play the political battlefield, because we will be in control of the deployment. You will see, step-by-step, how we plan, plan, secure and finally deploy Windows 2000 in an enterprise environment and how we try to take charge of securing our network at the same time.

Along the way, you'll see the mistakes we make and how we recover. I hope our experiences can help you avoid one or two of the pitfalls we discover.

Until next week, my friends, I look forward to a new beginning! ◗

■ *This journal is written by a real security engineer at a real company, whose name and employer have been disguised for obvious reasons. It is posted weekly at www.computerworld.com and at www.sans.org to help you and our security manager — let's call him Pat — better solve your security problems. Contact him with comments or advice at info@sans.org with the subject of* Pat's Journal.

## THIS WEEK'S GLOSSARY

**Layer 2 or 3 switches:** Switches, or data transfer devices, operating at Level 2 (data link) on Level 3 (network) of the Open Systems Interconnection communications standard.

**Internet service provider (ISP):** A company that provides links between its customers and the Web.

**Router:** A device that routes data packets between LANs or WANs.

**Firewall:** A network node set up as a boundary to prevent traffic from one segment from crossing into another; often refers to the boundary between a corporate network and the Web.

**Proxy server:** An Internet server that sits between users' PCs and the Web to keep employees from accessing undesirable Web addresses, improve performance by storing Web pages locally and hide the internal network's identity from hackers

**Internet Protocol (IP):** The protocol, or rules, governing the transmission of data across the Internet.

## LINKS:

***www.sans.org:*** Home page of the SANS Institute, a cooperative research and education institution in Bethesda, Md.

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# Tally Preps Asset Management Suite

BY SAMI LAIS

Desktop inventory software maker Tally Systems Inc. has announced it will buy all assets of decision-support software vendor NetBalance Inc. and has licensed a software distribution tool from Swan International Inc. in Paris.

The purchases will allow Lebanon, N.H.-based Tally to release by July a new repository-based suite of tools. The suite will tie information technology assets to accounting, help desk and software distribution functions and offer remote management via Web browsers, said Michael Gray, Tally's director of asset management products.

Tally claims up to 7.5 million PC licenses for its flagship product, NetCensus. CIT Group Inc. in Livingstnn, N.J., used the inventory tool as part of the financial services company's Y2k efforts, said Ann Hodges, CIT vice president of information control and support services.

Tally's suite will let companies leverage their inventories to take advantage of them, Gray said.

At the suite's core will be IT Ledger, decision-support software from NetBalance in Gaithersburg, Md. IT Ledger uses Java agents to capture data from financial and technical sources and collect it in a central Microsoft SQL repository. Configurable business rules govern scrubbing and normalizing of incoming data.

A help desk interface will link service-call activity to asset costs to let managers track and compare performance of PCs from different vendors, for example. Integration of NetCensus and IT Ledger, already in place, will be tightened in the new suite, Gray said.

Dominion Resources in Richmond, Va., uses IT Ledger to track purchased and leased equipment, said Wyman Smith, LAN administrator at the gas and electric utility.

"We lease all of our PCs," said Smith.

> The most costly way to run a system is to keep leased assets beyond their lease date.
>
> WYMAR SMITH, LAN ADMINISTRATOR, DOMINION RESOURCES

As each PC comes in, it's scanned, creating a repository entry. Throughout the PC's life cycle, its record grows, accumulating data such as added memory, a move to another site, help desk calls and lease terms, he said. Notifications go out 90, 60 and 30 days before leases end. "The most costly way to run a system is to keep leased assets beyond their lease date," Smith said. "You're keeping old technology at higher cost."

As staffing shrinks at one office and grows at another, the utility uses IT Ledger reports to make business decisions on how to redeploy assets, he said.

Software distribution tool Vision64, licensed from Swan, is available as a stand-alone now, in a NetCensus upgrade due in July and in the new suite.

At Media Station Inc. in Detroit, the Integrity Control Manager in Vision64 is critical, said Jim Maslin, president and CEO of the multimedia content provider. Media Station uses Vision-64 to deliver and update content via multicasting to cable companies. "We needed to be able to monitor what we deliver and ensure it was [automatically] fixed if it became corrupted," he said.

All products will continue to be sold and supported as stand-alones, Gray said. Pricing isn't yet available.

AT A GLANCE

## Asset Management

*Included in Tally Systems' new suite:*

**From Tally:** NetCensus desktop inventory

**From NetBalance:** IT Ledger decision support

**From Swan:** Vision64 software distribution

Just a reminder the next time you're thinking of a new line-of-business solution.

Microsoft SQL Server Enterprise Edition is now the world record holder for the PeopleSoft HRMS benchmark, with 17,500 concurrent users.

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# Ipswitch Boosts Monitoring Tool

BY SAMI LAIS

Ipswitch Inc. has released Version 5.0 of WhatsUp Gold, its Windows network monitoring tool aimed at small to midsize businesses.

The tool provides a low-cost way for small to midsize businesses to monitor networks, and larger companies use it to add a first-alert system to their enterprise management systems.

The Lexington, Mass.-based firm has continued to build on its strengths in mapping and reporting.

A Web browser-based graphical user interface, new with Version 5.0, should make navigation easier. And a Crystal Reports runtime plug-in improves managers' access to a variety of reports.

Enterprise Monitor from Hull, Quebec-based competitor MediaHouse Software Inc. has been praised by reviewers for its superior strength in monitoring, notification and management features.

Other competing products include SNMPc WorkGroup from Saratoga, Calif.-based Castle Rock Computing Inc.; RoboMon from Newton, Mass.-based Heroix Corp.; and Net Inspector from MG-Soft Corp. in Maribor, Slovenia.

WhatsUp Gold 5.0 costs $695.

# Now, Firewalls for Your Phones

BY ANN HARRISON

Improperly secured or unauthorized modems attached to private data networks can defeat network security practices and make companies vulnerable to backdoor attacks. As businesses concentrate on implementing Internet firewalls, some are also installing firewalls on their enterprise telepbone network.

"This is like leaving your front door unlocked every night when you go bome," said John Hart, senior vice president of corporate development at Colorado Springs-based Nochee Solutions Inc., a business-to-business e-commerce software developer. "We thought about firewalls and Internet access, [virtual private networks] and intranets, but no one ever thought about the vulnerability of open access to the phone system."

## Security Concerns

Hart said that security analysts hired by his company to conduct a security penetration test suggested last spring that Nochee consider securing its private branch exchange (PBX) phone system. At the time, Hart said, Nochee was building large virtual private networks and concerned about protecting its customers' data as well as its own.

Now that Nochee builds supply-chain software, security concerns remain. "A lot of large companies trust us with their intellectual property," Hart said, "and we owe it to them to make sure that we are as protected as much as possible."

Hart said Nochee took the consultants' advice and selected the TeleWall firewall for telephone lines from SecureLogix Corp. in San Antonio. TeleWall includes client and server software, a sensor hardware appliance and software, plus system engineering support and customer care. It is used to log or block phone traffic passing through a company's telephone network.

TeleWall can be integrated with TeleSweep Secure, SecureLogix's product that scans networks for unauthorized modems that have been plugged into dial-up phone lines or PBXs by employees and then forgotten. Some modems are also set up on the PBX system by the PBX vendor to provide service access. TeleSweep Secure also verifies the security of these existing modems and dial-up systems. Both tools have distributed architectures for scalability and centralized management.

Pricing for TeleWall two-sensor packages starts at $29,000, and additional sensors cost $7,000.

While Nochee's scan didn't locate vulnerable modem connections, Hart said, the company discovered that the pbone company was billing Nochee for lines and calling features it never used. Since deploying TeleWall last June, Hart said, the savings accrued by disconnecting underutilized phone assets have already paid for the system.

"If I were a CIO or CEO at a company, I'd sure be concerned about the vulnerability of PBX or voice systems in your building. What happens down the road if the assets of the company are stolen by employees or intrusion?" said Hart. "There is a high level of risk, and [companies] should take a close look to see if they are providing the highest level of security to prevent a confrontation with customers."

# Iona Rolls Out Web Portal Package

*Repositions from object request brokers to portals*

BY CLARE HANEY

Iona Technologies Inc. plans this week to release the first two pieces of its four-component iPortal Suite, according to Annrai O'Toole, co-founder, executive vice president and chief technical officer at the Dublin-based middleware company.

The first two iPortal Suite components — Orbix 2000 and iPortal Application Server — will support Microsoft Corp.'s Windows 2000, Hewlett-Packard Co.'s HP-UX, Linux and Sun Microsystems Inc.'s Solaris, O'Toole said.

The two other pieces of the suite are iPortal Integration Server and iPortal Server. IPortal Integration Server will ship April 3, while iPortal Server is likely to ship in June, O'Toole said. The four pieces of iPortal suite should be seen as "four individual strands that can be used without relying on eacb other," be added.

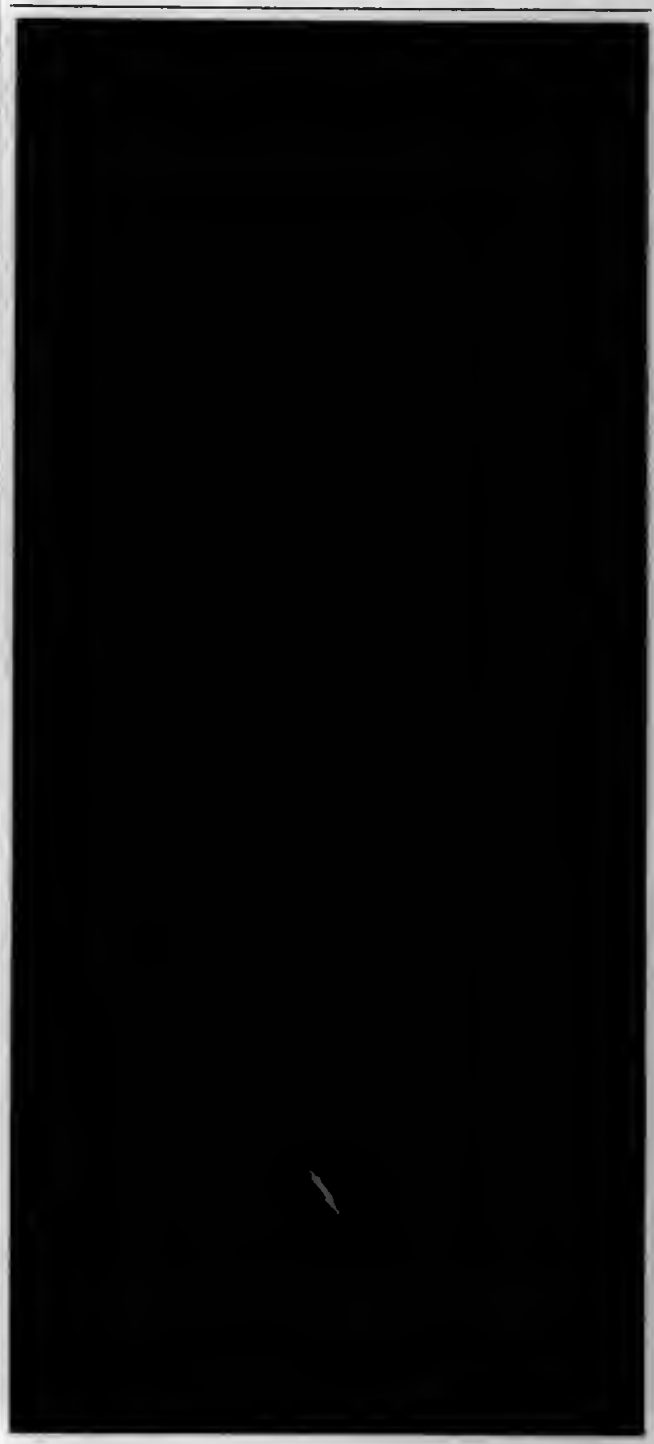
Orbix 2000, the latest release of Iona's flagship object request broker, is compliant with the Object Management Group's Common Object Request Broker Architecture standard and is the basis of the iPortal Suite, O'Toole said.

IPortal Application Server is best thought of as a place to hold component-based business logic and is compliant with Enterprise JavaBeans and the Java 2 Enterprise Edition. IPortal Integration Server allows back-end systems to be accessed and pulls Iona's messaging products, such as OrbixTalk and OrbixEvents, together with connectors from St. Laurent, Quebec-based Visual Edge Software Corp., O'Toole said.

With Iona's planned acquisition of XML specialist Watershed Technologies Inc., iPortal Server will tie together all the back-end data and expose it on the Internet, O'Toole said.

"This is the first Iona product not destined for developers," he added. "It's for webmasters so that they can configure the product in terms of the type of users and what they can see, like a traffic cop directing all the requests to the back end."

*Haney writes for the IDG News Service in San Francisco.*



# BRIEFS

## Internet Kiosks

San Diego-based CAIS Software Solutions, which develops automated Internet access software, has teamed up with Coral Springs, Fla.-based PNV Inc. to install Internet kiosks at truck stops across the country. PNV provides bundled telecommunications, Internet access and cable television services to truck drivers in their cabs.

Under an agreement signed by the two companies, CAIS will provide up to 500 kiosks under PNV's ConnectPoint brand name. According to the companies, this is the largest nationwide installation of public Internet terminals to date.

The kiosks will allow truck drivers to plan cost-effective routes, purchase products and services and send e-mail to family, friends and business associates. PNV provides the kiosks free to truck stop owners, who will receive a percentage of the revenue generated by the machines.

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## Tandberg to Launch Newest SLR Product

Tandberg Data Inc. this month will roll out the SLR100 Autoloader, the latest addition to the SLR automated tape line. The SLR100 is available in tabletop or rack-mount versions, holds up to eight cartridges with up to 800GB in capacity and has transfer rates of up to 36GB per hour. It will sell for approximately $6,195.

## Spatial Announces CAD/CAM System

Spatial Inc. in Boulder, Colo., last week announced 3DShare Enterprise, an online computer-aided design and manufacturing (CAD/CAM) file translation and repair service. Companies that employ a variety of CAD/CAM systems can use the service to repair and translate models developed in one format to another. Spatial says files can be accessed and repaired using standard Web browsers.

Spatial is a provider of Web-based business-to-business technical file sharing services.

## CA Starts GPS Application Company

The newly formed EverTrac Inc. will draw on the resources of its parents – Computer Associates International Inc. in Islandia, N.Y., and United Microelectronics Corp. in Taiwan – to develop "location-aware" electronic-business applications.

The new applications will use Global Positioning System technology to deliver real-time tracking of mobile resources.

## IBM Upgrades Magstar 3590

IBM last week bolstered its tape storage portfolio, enhancing the Magstar 3590 tape cartridge. Storage capacity for the 3590 Model E has been increased from 20GB to 40GB; the Model A60 now supports eight ESCON channels. The cartridges support selected systems, including S/390, AS/400 and Windows NT.

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# Directories

BY SAMI LAIS

THE DIRECTORY concept — a single place for address information about all the resources for a network or an application — is so elegant and logical, it's no wonder it has generated a lot of attention.

Typically, an enterprise will have different kinds of data in different proprietary directories. E-mail addresses are held in a messaging system, date-of-hire information is locked away in a human resources application, and network identifications are kept in a network operating system's directory.

An enterprise with 100,000 employees can easily have 70 or 80 directories to manage, says Jamie Lewis, an analyst at The Burton Group in Midvale, Utah. And each employee will have different access rights to each directory.

E-commerce demands crank up the pressure. "If you can't manage hire/fire data for 100,000 employees, how are you going to manage data for potentially millions of customers?" Lewis says.

The obvious — and wrong — answer is "one uber-directory shining down from the sky," he says. As appealing as the uber-directory is, "it turns out not to be very practical or doable," Lewis says. Companies can't replace e-mail directories, enterprise resource planning systems and other applications that include their own directories overnight. Instead, he says, enterprises must build a unified infrastructure for managing multiple directories.

DEFINITION

**A directory** is a structured, indexed repository that contains information about and addresses for computing resources such as files, folders and network segments; output devices; users and workgroups; and passwords and other authentication data.

Directory service software, such as Novell Inc.'s Novell Directory Services (NDS) and Microsoft Corp.'s Active Directory, tracks employee and security information in the directory. Standards such as X.500 and Lightweight Directory Access Protocol (LDAP) define a format for storing and accessing that information.

Which directory service an enterprise selects to build on depends on the existing infrastructure, according to Lewis. "If you've decided oo Novell as your strategic vendor, you'll go with NDS; if Exchange is your primary messaging system, you'll go with Active Directory," he says.

## Deployment Decisions

The greater question isn't if but when a company will select a primary directory service. The question of wheo is "an issue of where a company is in its requirements planning," says Sara Radicati, principal analyst at The Radicati Group Inc. in Palo Alto, Calif.

If a company is considering Active Directory and Windows 2000 but has a working method to manage its systems, it can afford to wait, she says.

"But spending another year with some lousy method," instead of starting to deploy the directory service, "just doesn't make sense," Radicati says.

And benefits accrue to early adopters. "They tend to get better support, and typically, they get a say in how the application evolves," she says.

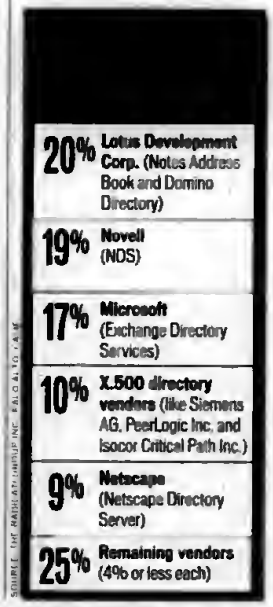
NDS has had time to mature during the past six years. A study The Radicati Group completed in December puts the installed base for NDS at 33 millioo users; Novell claims to have 50 million users.

Active Directory and Windows 2000 will catch up. Radicati predicts that Microsoft's directory services will grow at a rate of 40% to 45% per year for the next five years.

Either of the two leading network operating systems' LDAP directory services, or a more sophisticated but difficult-to-manage X.500 directory service, will simplify administration. They hold digital signatures and other security information to let an enterprise efficiently manage public-key infrastructure applications.

They can also hold software and hardware inventories. When it's time to roll out an upgrade, finding a list of all users with SpreadSheet Versioo 8.12 is just a query away.

A company may standardize on a network operating system directory but choose another, such as Netscape Communications Corp.'s Netscape Directory Server, for an e-commerce application. It also could select a stand-alone product such as Novell's eDirectory, released this year, Lewis says. ■




## Metadirectory Knows All, Tells All

Once you have a network operating system directory service in place, the question remains: How do you ensure interoperability among directories?

The Internet Engineering Task Force has been working on a standard for how directories replicate data, but it's unlikely to increase interoperability, says Jamie Lewis, an analyst at The Burton Group in Midvale, Utah. It's more likely to raise greater interoperability questions. "Microsoft has made it known it is not in support of the standard," Lewis says.

The answer to the management conundrum may lie in metadirectory services.

A "join engine" at the heart of a metadirectory service merges data on people, groups, roles, locations and other resources from application, network operating systems, e-mail and other directories and provides access to that data via LDAP, X.500 or the Web.

But a metadirectory service needs to store the merged information in a repository, and systems managers have balked at adding yet another directory – especially one from a small vendor of metadirectory services.

Microsoft last year bought metadirectory vendor Zoomit Corp., while Novell scooped up Netoria Inc. Each company will integrate its purchased metadirectory services into its directory services. Instead of each metadirectory service using its own repository, the firms will integrate them into NDS or Microsoft's Active Directory.

### Automatic Replication

A metadirectory service lets systems administrators make changes in users' security status, e-mail address or human resources profile, with changes automatically replicated to the individual directories. Similarly, a human resources manager with access privileges can make changes in the human resources directory, or database, and those changes will be automatically replicated to the metadirectory and related directories.

When junior adviser Jane Jones becomes senior adviser Jane Jones-Smith, the changes are entered once and propagated throughout all directories. Such replication is crucial for enterprises with multiple regional offices, each with constantly changing directories.

"I can't imagine that a large corporation could do without a metadirectory" to replicate, synchronize and manage its directories, says Sara Radicati, principal analyst at The Radicati Group in Palo Alto, Calif.

New York Life Co. began rolling out a metadirectory in 1998, starting with e-mail and payroll directories.

Today, the "white pages" for looking up e-mail and telephone information on any of New York Life's 100,000 employees is taken for granted, says the company's systems administrator Jack Heinz. The rollout is still rolling, he adds.

That's not unusual, Lewis says. It's a complex process. "It's not so much the metadirectory implementation – it's the data scrubbing; it's determining data ownership; it's a lot of sociopolitical issues," he says.

"Companies that dive headfirst into the technology come up short because they haven't factored in the sociopolitical aspects," he says.

It's crucial to get buy-in from top to bottom and build a cross-functional team that includes all stakeholders to help in planning, but "there are compelling drivers – both internal and external – to make it work," he says. "There's nothing like economic pressure to bring consensus to an organization."

– *Sami Lais*

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"But spending another year with some lousy method," instead of starting to deploy the directory service, "just doesn't make sense," Radicati says.

And benefits accrue to early adopters. "They tend to get better support, and typically, they get a say in how the application evolves," she says.

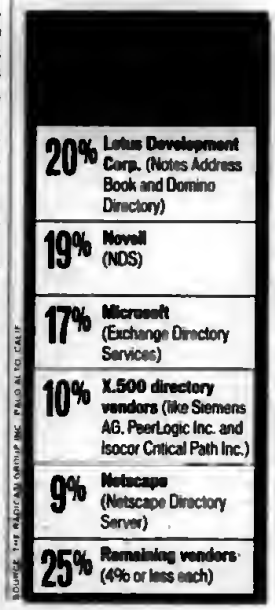
NDS has had time to mature during the past six years. A study The Radicati Group completed in December puts the installed base for NDS at 33 million users; Novell claims to have 50 million users.

Active Directory and Windows 2000 will catch up. Radicati predicts that Microsoft's directory services will grow at a rate of 40% to 45% per year for the next five years.

Either of the two leading network operating systems' LDAP directory services, or a more sophisticated but difficult-to-manage X.500 directory service, will simplify administration. They hold digital signatures and other security information to let an enterprise efficiently manage public-key infrastructure applications.

They can also hold software and hardware inventories. When it's time to roll out an upgrade, finding a list of all users with SpreadSheet Version 8.12 is just a query away.

A company may standardize on a network operating system directory but choose another, such as Netscape Communications Corp.'s Netscape Directory Server, for an e-commerce application. It also could select a stand-alone product such as Novell's eDirectory, released this year, Lewis says. ◗




## Metadirectory Knows All, Tells All

Once you have a network operating system directory service in place, the question remains: How do you ensure interoperability among directories?

The Internet Engineering Task Force has been working on a standard for how directories replicate data, but it's unlikely to increase interoperability, says Jamie Lewis, an analyst at The Burton Group in Midvale, Utah. It's more likely to raise greater interoperability questions. "Microsoft has made it known it is not in support of the standard," Lewis says.

The answer to the management conundrum may lie in metadirectory services.

A "join engine" at the heart of a metadirectory service merges data on people, groups, roles, locations and other resources from applications, network operating systems, e-mail and other directories and provides access to that data via LDAP, X.500 or the Web.

But a metadirectory service needs to store the merged information in a repository, and systems managers have balked at adding yet another directory – especially one from a small vendor of metadirectory services.

Microsoft last year bought metadirectory vendor Zoomit Corp., while Novell scooped up Net*ware Inc. Each company will integrate its purchased metadirectory services into its directory services. Instead of each metadirectory service using its own repository, the firms will integrate them into NDS or Microsoft's Active Directory.

### Automatic Replication

A metadirectory service lets systems administrators make changes in users' security status, e-mail address or human resources profile, with changes automatically replicated to the individual directories. Similarly, a human resources manager with access privileges can make changes in the human resources directory, or database, and those changes will be automatically replicated in the metadirectory and related directories.

When junior adviser Jane Jones becomes senior adviser Jane Jones-Smith, the changes are entered once and propagated throughout all directories. Such replication is crucial for enterprises with multiple regional offices, each with constantly changing directories.

"I can't imagine that a large corporation could do without a metadirectory" to replicate, synchronize and manage its directories, says Sara Radicati, principal analyst at The Radicati Group in Palo Alto, Calif.

New York Life Co. began rolling out a metadirectory in 1998, starting with e-mail and payroll directories.

Today, the "white pages" for looking up e-mail and telephone information on any of New York Life's 100,000 employees is taken for granted, says the company's systems administrator Jack Heinz. The rollout is still rolling, he adds.

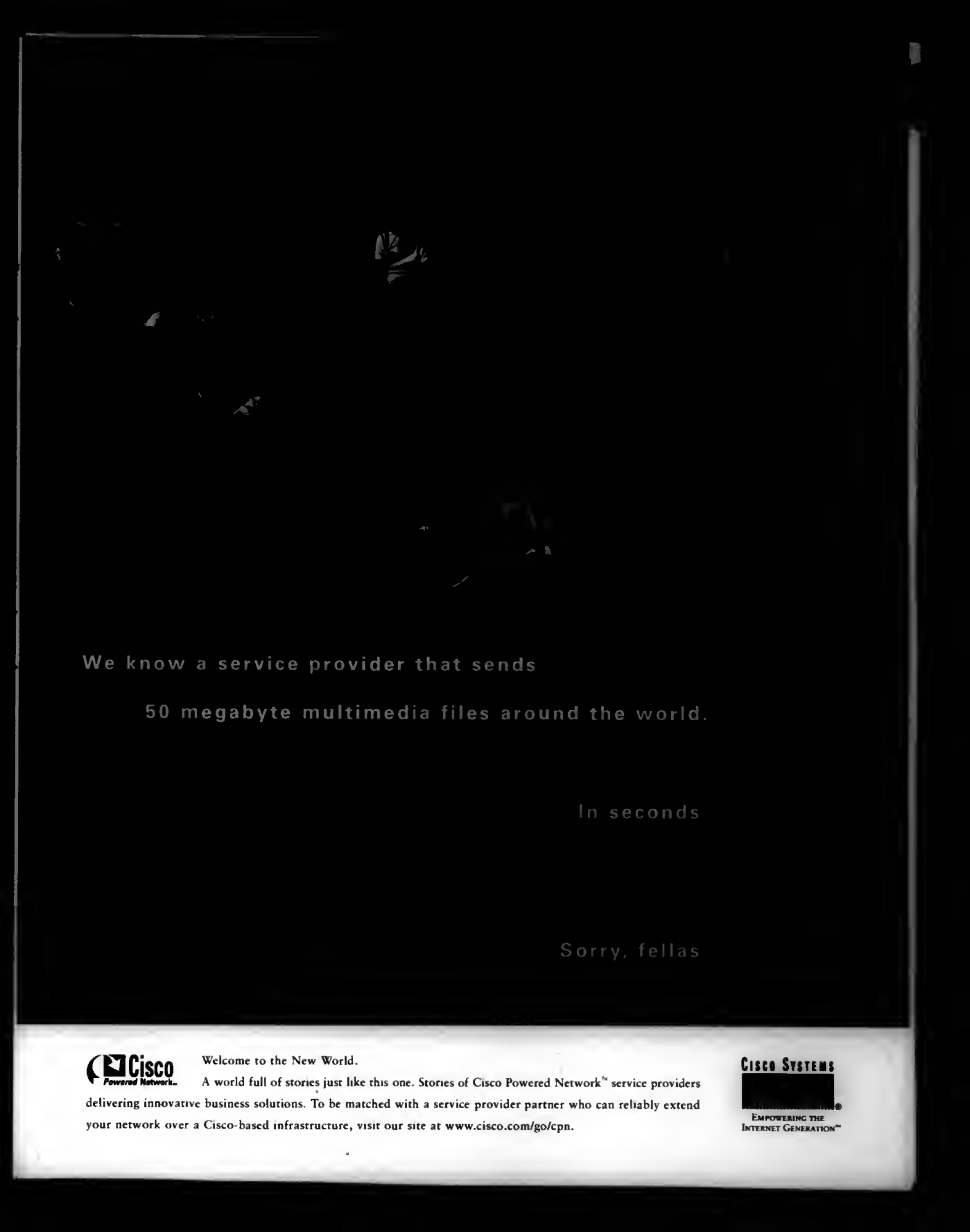
That's not unusual, Lewis says. It's a complex process. "It's not so much the metadirectory implementation – it's the data scrubbing; it's determining data ownership; it's a lot of sociopolitical issues," he says.

"Companies that dive headfirst into the technology come up short because they haven't factored in the sociopolitical aspects," he says.

It's crucial to get buy-in from top to bottom and build a cross-functional team that includes all stakeholders in help in planning, but "there are compelling drivers – both internal and external – to make it work," he says. "There's nothing like economic pressure to bring consensus to an organization."

– *Sami Lais*

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# You've Got (DIRTY) Mail

Like it or not, you may wind up monitoring employees' e-mail. Here are some tools and tips for playing Big Brother without getting swamped with work. By Christopher Lindquist

IT WAS BUSINESS as usual at Union, N.J.-based shipping company CaroTrans International Inc. until a mail-borne virus — too new to be caught by the company's virus scanner — snuck through the company's Microsoft Exchange Server. The rogue infection attacked about a dozen machines and wiped out numerous files before the firm's information technology department stopped it.

It got CaroTrans' IT outsourcer — Freight Systems Inc. in Cherryville, N.C. — thinking about how to ward off unwanted e-mail. Freight Systems chose an e-mail scanning package that can view the content of every message passing through corporate servers.

Mail scanning may make many people think of Big Brother, but as e-mail use and abuse continues to grow, corporations increasingly worry about e-mail as a security hole. Recent denial-of-service attacks on Web sites, possibly aided by subversive programs distributed via e-mail, add to the anxiety.

According to Jodi Beebe, bot line director at the Privacy Rights Clearinghouse in San Diego, employers have the right to monitor employee e-mail.

Freight Systems installed MailMarshal from Auckland, New Zealand-based Marshal Software. According to Zack Godwin, a systems engineer at Freight Systems, MailMarshal enables the company to scan for viruses and unnecessary attachments.

According to analyst Victor Wheatman at Stamford, Conn.-based Gartner Group Inc., companies consider scanning e-mail for several reasons, including the following:

- Regulatory requirements force some security firms to scan all communications between brokers and customers.
- Spam can clog mail servers.
- If spammers use your servers as relay points for "spoofing" (masking where spam originates), downstream message recipients who can prove you did nothing to remedy the prob-

lem may sue for damages.
- Health care and law enforcement agencies want to keep confidential information from unauthorized people.
- Employers may have concerns about employees using e-mail to send pornography or other inappropriate materials.

## No Easy Solution

Current products such as MailSweeper from Kirkland, Wash.-based Content Technologies Inc. and Message Inspector from Burlington, Mass.-based Elron Software Inc. can examine all incoming and outgoing e-mail at the server for inappropriate or virus-laden attachments, offensive language or unauthorized information.

Once such products detect a problematic message, they can block it from transmission, respond with a warning, forward it to a quarantine mailbox or a respond with a combination of all three techniques.

But according to customers and analysts, mail scanning requires more than just installing a tool and letting it run. Scanning for content can become time-consuming, even with severe limits on what's considered questionable.

A recent Gartner report estimates that a securities company with 10,000 employees would need to hire an additional 10 workers and spend up to $1 million per year reviewing e-mail.

You can cut such costs by reducing the scope of the scans — say, from looking for certain words to looking for certain types of attachments. But in overworked IT departments, any extra work may be too much.

Gary Jones, a network manager at a large eastern U.S. construction firm, who asked not to be identified, found out about the workload the hard way.



> We want it to catch what we want and let as much other stuff as possible pass.
>
> ZACK GODWIN, SYSTEMS ENGINEER, FREIGHT SYSTEMS

His team installed Message Inspector and set it to direct mail that had attachments or potentially inappropriate language to Jones. His administrator mailbox was quickly flooded with questionable messages. Unfortunately, some of them were false positives. For instance, the scanner would flag "Virginia" because it contains the possible hot-button word "virgin." Jones quickly decided to scan simply for attachments.

Godwin avoided getting overloaded by false alarms by instructing MailMarshal to check only for executable and JPEG file attachments. "We haven't set up a lot of filters yet," he says. "We want it to catch what we want and let as much other stuff as possible pass."

## Better Than Nothing

A need to deal with an overwhelming flow of e-mail is one of the main reasons Nitin Agarwal says he began investigating automated e-mail scanning. Agarwal, an IT consultant at Diamond Dye-Chem Ltd. in Bombay, India, currently gets a copy of every message that travels through corporate walls, in an attempt to keep company secrets and other objectionable material out of e-mail. But with 70 employees, the flow is becoming a flood. And, as Agarwal notes, "once the mail has left the server, it doesn't make much difference whether you catch the culprit or not, since the data has already been leaked."

Some good news: Just telling employees their mail might be scanned — and teaching them about proper e-mail usage — may help as much as the products themselves.

Computers at Jones' company, for example, display an acceptable use policy each time a user logs on. "Everybody always asks me, 'Can you really see this or that?' " Jones says. "And I say, 'Yes, we can.' "

*Lindquist is a freelance writer and reviewer in Moss Beach, Calif.*

## E-Mail Scanners

Most offer similar core features, such as the ability to scan for content and attachments. Spending more gets you advanced features, such as context-sensitive scanning that helps avoid false alarms and the ability to scan for viruses.

**Aspeon Software Inc.**
(888) 384-5600
*www.aspeonsoftware.com*
**Exchange Plus**
- Scans for content and attachments.
- Automatic attachment compression can help save bandwidth.

**Starting price:** $699 for 25 users.

**Content Technologies Inc.**
(425) 889 4724
*www.mimesweeper.com*
**MailSweeper**
- Scans for content, viruses and attachments.
- Helps prevent e-mail spoofing (unauthorized use of corporate mail servers by outsiders).

**Starting price:** $1,511 for 50 users.

**Elron Software Inc.**
(800) 767-6683
*www.elronsoftware.com*
**Elron CommandView Message Inspector**
- Scans for content and attachments.
- Features context-sensitive scanning.
- Online policy guide helps organizations write scanning policies. *(www.elronsoftware.com/enterprise/lupguide.pdf)*

**Starting price:** $1,195 for 25 users.

**Marshal Software**
(888) 446-7898 (reseller)
*www.marshalsoftware.com*
**MailMarshal**
- Scans for content, viruses and attachments.
- Helps prevent e-mail spoofing.
- Can act as stand-alone Post Office Protocol mail server.

**Starting Price:** $1,950 for a 100-user version.

**SRA International Inc.**
(703) 803-1500
*www.sra.com*
**Assentor**
- Scans for content, attachments and viruses.
- Features context-sensitive scanning, which is especially useful for securities and insurance customers.
- Automatically updates search patterns every 90 days.

**Starting price:** $125 per seat.

**Symantec Corp.**
(800) 441-7234
*www.symantec.com*
**MailGear**
- Scans for content and attachments.
- Blocks spam.
- Helps prevent e-mail spoofing.

**Starting price:** $834 for 100 user accounts.

**Trend Micro Inc.**
(800) 228-5651
*www.antivirus.com*
**ScanMail**
- Scans for content, viruses and attachments.
- Automatically updates virus patterns.

**Starting price:** $600 for 25 users.

**TumbleWeed Communications Corp.**
(800) 640-3888
*www.tumbleweed.com*
**WorldSecure Mail**
- Scans for content, viruses and attachments.
- Can automatically encrypt messages at the server.
- Can use industry-specific lexicons for content scanning.

**Starting price:** $3,995 for 50 users.

# Management Standards Inch Toward Usefulness



BY SAMI LAIS

MANAGING AN enterprise's systems, networks, applications and desktops is a lot like herding cats in that, theoretically, neither can be done.

But most systems managers, such as Dean Hancock at Pacific Coast Building Products Inc. in Sacramento, Calif., are frank about needing help. Hancock, who was in the middle of a rollout of SAP AG software to 60 locations in nine states, had to monitor separate consoles to track the health of his network, Oracle Corp. database and applications.

The Common Information Model (CIM) standard and the Web-based Enterprise Management (WBEM, pronounced Web-um) architecture, of which CIM is an element, offer a common structure on which products from multiple vendors can be managed and can manage each other, says Winston Bumpus, president of the Desktop Management Task Force (DMTF), an industry group that developed the standard.

Certainly, systems managers would cheer the toppling of the Tower of Network Management Babel. And "monolingual" applications, which could be managed by any management system on any platform, would cut costs for application development.

So what's the holdup?

It only works if all information technology vendors implement it, says Barb Goldworm, an analyst at Enterprise Management Associates in Boulder, Colo. "Everyone wants to manage, but no one wants to be managed," she says.

Get over it, and get on with it is the



message Jerry Foy says he'd like to send vendors. Foy is director of automatioo services at Computer Sciences Corp.'s Newark, Del.-based technical center, which supports CSC's securities industry clients.

The center handles "storage-area network managemeot, systems management, open systems, mainframes and e-business support, and we have to ensure their interoperability," says Foy.

"A widely adopted CIM standard would crumble barriers to interoperability issues throughout systems," he says.

Foy says he's eager, eveo impatient, to see more storage vendors embrace CIM. "It's not just big technical centers," he says. "If you look at dot-coms and application service providers, their biggest headache is managing storage on top of their networks."

Although most managers haven't paid mucb attention to CIM, the grumbles of those like Foy are reachiog vendors' ears.

Hancock, in search of a single point for managing his systems, hit oo one of the few products built on CIM, Hewlett-Packard Co.'s VantagePoint. Available April 1, it will be the first major software suite to manage information internally, using the CIM format.

"This is the first indication that CIM could really become the de facto management standard," says Jasmine Noel, an analyst at D. H. Brown Associates Inc. in Port Cbester, N.Y. "It's a big win for CIM."

"A lot of [software vendors] are just publishing informatioo to the CIM object manager or pulling informatioo from the CIM database," says Corey Ferengul, an analyst at Meta Group Inc. in Stamford, Conn. But with VantagePoint, HP "has said, 'we're really going to adopt standards' " like CIM, Ferengul says.

Jim Turner, marketing director of the enterprise management unit at Cisco Systems Inc. in San Jose and chairman of DMTF, was a member of the original working group for WBEM.

CIM support is part of network management software CiscoWorks 2000, Turner says. An early implementation of CiscoWorks did simple tasks such as "a CIM data exchange with the MOF," he says. A MOF (Managed Object Format) is an ASCII file that contains a CIM schema definition. If CIM were a library, the MOF would be the card catalog.

A new CiscoWorks version this year will support the CIM 2.3 standard recently ratified by the DMTF, Turner says. "But the bigger picture," he says, is the work on Directory-Enabled Networking (DEN), another DMTF standard.

Generally, Directory-Enabled Networking refers to an expanded use of a repository of data about users, applications, network resources and the relationships among them.

> "CIM [is one of] the most interesting standards to come down the pike in years."
>
> JONATHAN EUNICE, ANALYST, ILLUMINATA INC.

A central database of such data, accessible to any applicatioo, service or management software, lets managers more easily institute policy-based management. They can use the data to give users or applications different priority in accessing network resources.

DEN is DMTF's description of how the data in the repository is described and linked.

## Vendor Support

Nearly 200 software vendors support DMTF standards. Computer Associates International Inc. in Islandia, N.Y., offers support in its management framework, Unicenter TNG.

Since 1998, Tivoli Systems Inc. has included some CIM support in its NetView management software. IT Director, the next version of NetView and Manager for Windows 2000, will support the full DMTF, WBEM and CIM standards, says Raymond Williams, director of standards at Tivoli and DMTF's vice president of technology.

XML for representing tabular data and CIM "are the most interesting standards to come down the pike in years," says Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

But how good a standard is and how much it could benefit users aren't necessarily indicators of success, he warns. Some standards, including HTTP and Simple Network Management Protocol (SNMP), "are crappy technology," says Eunice. "They're inefficient, they have poor security and low functionality — they're losers." Yet they're ubiquitous.

Most analysts give CIM a good chance of acceptance, but estimates vary as to when CIM will achieve "critical mass." Goldworm puts it at 18 months, but Windows 2000 and Windows Management Instrumentation

*Continued on page 77*

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## The New Building Blocks of Systems Management

If it's widely adopted by IT vendors, CIM would make enterprise systems much easier to design, deploy and manage, and it eventually would make IT products faster and cheaper to develop.

But if and when it becomes ubiquitous in management software, you probably won't directly notice it – just as when you eat a Caesar salad, you don't think, "Mmm, photosynthesis."

CIM is a set of schema, or definitions of a database, of management data for applications, devices, services and the relationships among them. Each of these objects makes its management data available in CIM format to any other CIM-enabled object. XML is used to present tabular data.

CIM's hierarchical, object-oriented architecture makes creating associations a straightforward task, said Raymond Williams, DMTF vice president of technology and director of standards at Tivoli Software.

For example, "you can create a network service, associate it with a port, associate that with a particular box and associate it all with a system," Williams said. "Then you can link it [to a business process] and build a business view."

Communication between CIM objects is via the Web protocol HTTP.

CIM, XML and HTTP are the triumvirate that make up WBEM.

In specifying CIM and WBEM standards, the DMTF has used other standards and protocols, such as the Lightweight Directory Access Protocol (LDAP), which defines the directory infrastructure for storing and accessing management data.

The DEN standard defines how CIM objects can be stored, associated and accessed in that common directory infrastructure.

As software and hardware vendors incorporate CIM standards into their products, some create their own CIMOMs. Microsoft calls its CIMOM the Windows Management Instrumentation. And Sun Microsystems Inc. last year released its CIMOM, Solaris WBEM Services.

WBEM is a work in progress, according to Williams. "There are still missing pieces, such as [a standard for representing] runtime information," he said. "It's hard to come up with parameters and properties general enough for all applications to use."

The DMTF met last month to refine specifications that define "what it means to be compliant with WBEM, CIM, DEN," said Jim Turner, DMTF chairman and marketing director of the enterprise management unit at Cisco Systems.

The next step, due by summer, will be "to build a set of compliancy tests available over the Internet to test and certify" software as CIM-compliant, Turner said.

– *Sami Lais*

*Continued from page 75*

(WMI) may give it a jump start.

Microsoft Corp. has included its CIM object manager, WMI, in Windows 98, in a service pack for NT 4.0 and, most notably, in Windows 2000.

"CIM is to the object-oriented world of management what SQL is to the relational world of databases," says Michael Emanuel, a product manager at Microsoft. It means managers can run scripts to handle various management tasks "in Windows and apply them to Solaris systems," he says.

CIM object managers (CIMOM) may be CIM-compliant, while also having a proprietary twist, much as SQL databases from different vendors have proprietary features, Eunice says. So even with industrywide support for CIM, he says, "the HPs, the Suns, the IBMs and the Microsofts of the world will put in their little tweaks."

### Getting a Jump

WMI in Windows 2000 may be many managers' first experience with CIM.

At Nabisco Inc. in Parsipanny, N.J., MIS Manager Rich Burton says he's getting the jump on that day. Nabisco last year deployed Microsoft's Systems Management Server (SMS), which supports CIM. In fact, Burton says, most of the management tools he uses, including AppManager Suite from NetIQ Corp. in Santa Clara, Calif., and Tivoli Enterprise, support CIM.

"We are adding our own registry extensions to the NT registry. CIM allows us to make those registry extensions part of our SMS Inventory," says Burton, pointing out that extending the CIM schemas lets him add descriptions of Nabisco's network resources.

The company also is "working on some of our own extensions to the SMS MOF," Burton says. The extensions will let him add Nabisco-specific information to his software inventory.

"There is no reason the vendors cannot provide all the management instrumentation via CIM," Burton says.

But until CIM is as ubiquitous as SNMP, software vendor Managed Objects Inc. in McLean, Va., offers a way to get some of CIM's management benefits.

The company's Formula suite uses a CIM Object Manager console, which receives data from each object in the network. It creates the objects by putting a Common Object Request Broker Architecture wrapper around servers, platforms and enterprise management software such as Patrol from BMC Software Inc. in Houston, CA's Unicenter TNG and NetView from IBM subsidiary Tivoli in Austin, Texas.

Individual adapters in Formula access the databases of these management systems and translate the management data on the fly into CIM-compliant format. Formula can also send commands to the management systems.

CIM could benefit software developers and users by simplifying and therefore speeding application development.

Theoretically, one could build an application that integrated management data, represented in CIM format, from various management systems for different platforms.

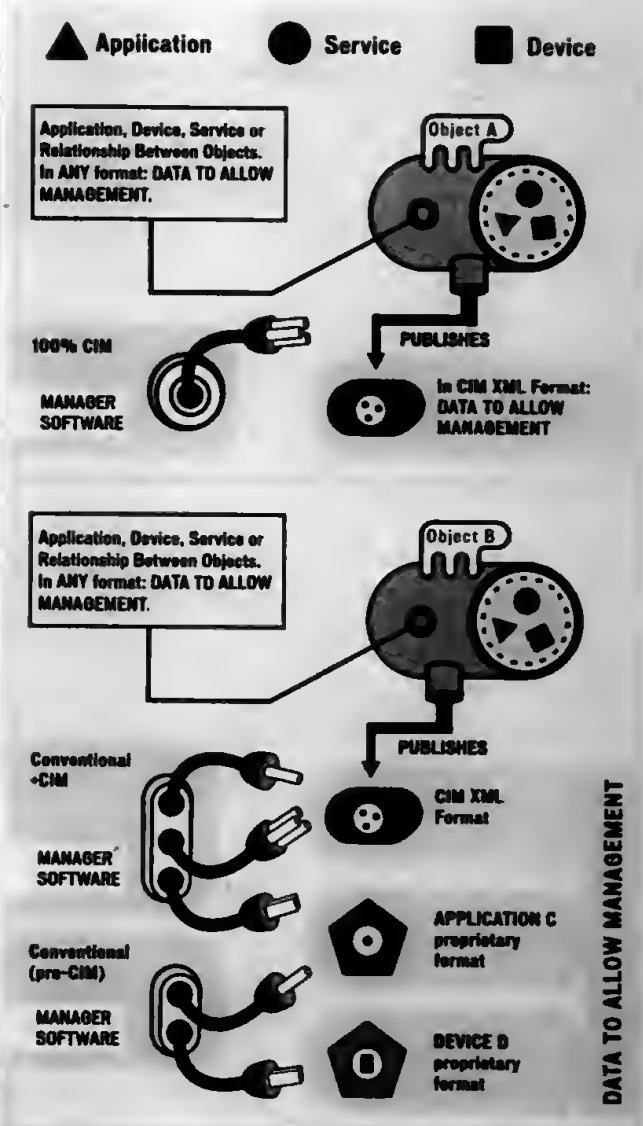
The management data, including that of the application, would be collected and stored in a common directory in CIM format. Any management system running on any platform could then access and analyze that data, with no need to write code for each management system the application might be used with.

That might happen in a perfect world, says Subhash Agrawal, vice president of distributed systems at BMC Software.

Until all or at least most non-WBEM devices and applications have been retired, management software developers will have to continue writing and testing for them, as well as CIM-enabled devices, he says.

BMC's Patrol system management software has had some CIM support since 1998, and more is on the way, Agrawal says.

Bumpus, who's director of open technologies and standards at Novell Inc. in San Jose, downplays the difficulty of adding WBEM and CIM support. "If you can read HTTP and understand XML, you can do this," he says.



# Open-Source E-Mail Goes Commercial

*Start-up Sendmail Inc. hopes it can answer, "Why buy when it's free?"*

BY LEE COPELAND

GEOFF Butterfield says he knew exactly what to expect from Sendmail Inc.'s Simple Mail Transfer Protocol gateway and e-mail package — hands-off, user-friendly efficiency — and he says he got it.

Although he was a first-time user of the commercial product, he wasn't exactly your typical new-software owner. Butterfield had used the open-source-code version of Sendmail for several years. When the packaged product became available two years ago, Butterfield, director of Internet technologies at the George Lucas Educational Foundation, upgraded to the commercial version for the San Rafael, Calif.-based nonprofit research group's Internet mail system.

"What kept us with Sendmail instead of one of the numerous other mail products is that the graphical user interface [GUI] makes it more friendly to use. I check on it once a month to make sure it isn't broken, and it runs like a champ," Butterfield reports.

Butterfield adds that cost was an important factor in the decision as well. "I like to use open-source software as much as I can. It's a huge problem to pay for [a] network software license for many education systems because the schools don't have money."

## Prior Foundation

Unlike most start-ups, Sendmail inherited a huge installed base when it formed as a private company in March 1998. Since Eric Allman developed the Sendmail message-transfer agent at the University of California, Berkeley, in 1981, literally thousands of developers have tweaked and improved the code and thousands of users have made it the basis for storing and forwarding Internet e-mail.

Emeryville, Calif.-based Sendmail estimates that 75% of Internet mail servers in use today exchange mail with this open-source message-transfer agent.

CEO Greg Olson and Allman, now chief technical officer, founded the company to tap into the existing market. But Olson says the firm's biggest challenge is convincing the user base to try the commercial version of the message-transfer agent (MTA).

"The open-source software is too good," says Olson. "Folks have been using it a long time. It hardly ever crashes or loses messages, so why change the approach?"

To get Sendmail open-source users to upgrade, the commerce company created GUI tools to make configuring and managing the mail system easier. The company also developed a version for Windows NT.

Analyst Mark Levitt at International Data Corp. in Framingham, Mass., says converting open-source customers to the commercial product may not be as difficult as it first appears. "Getting someone to upgrade is easier than getting them to buy something new," Levitt says.

"They would have been open-source aliens a few years ago, but the concept is more approachable now," adds Butterfield. "A number of companies have shown that open-source software can become a quality and robust product."

Indeed with the success of Linux open-source code, it has become easier for firms like Caldera Systems Inc. in Orem, Utah, and Red Hat Inc. in Durham, N.C., to sell support and GUIs for free software.

## Finding a Niche

Analysts say Sendmail should find a niche, even among corporations that already use messaging software packages such as Lotus Development Corp.'s Notes/Domino or Microsoft Corp.'s Exchange Server.

"We see a growing trend among corporate customers that want a pure Internet gateway for a lower price," says Sara Radicati, president of The Radicati Group Inc. in Palo Alto, Calif. "It's a way to break a little bit away from total vendor lock-in."

Jim Lin, postmaster at database maker Sybase Inc. in Emeryville, Calif., says he uses Sendmail as an e-mail backbone to connect to the Internet. Lin's messaging environment includes Notes and Unix mail for 4,500 users spanning 30 countries.

"One major reason for buying the commercial version is to have the vendor company backing it and more guaranteed support," says Lin. "We used to figure it out ourselves or rely on an independent contractor who is a Sendmail guru, but that isn't a reliable source. With a commercial company selling it, some liability is attached, so we feel we're buying [this] product with support."



**SENDMAIL'S management team (left to right, Vice President of Services Kathy Opeka, Marketing Vice President Richard Guth, CEO Greg Olson and Chief Technical Officer Eric Allman) hope their software will attract buyers**

## Sendmail Inc.

**Location:** 6425 Christie Ave., 4th Floor, Emeryville, Calif. 94608

**Telephone:** (510) 594-5495

**Web:** *www.sendmail.com*

**Niche:** Open-source e-mail and message-transfer technology

**Why it's worth watching:** Open source code is storming into information technology shops. Sendmail is poised to convert these users into paying customers.

**Company officers:**
- Greg Olson, co-founder, president and CEO
- Eric Allman, co-founder and chief technology officer
- Richard Guth, vice president of marketing

**Number of employees:** 150

**Customers:** Amway Corp. in Ada, Mich., Texaco Inc. in White Plains, N.Y., Sybase, and Johnson & Johnson in New Brunswick, N.J.

**Burn money:** Sendmail got going with $18 million from angel investors and technology partners such as Sun Microsystems Inc. founders Andy Bechtolsheim and Bill Joy, Compaq Computer Corp. Chairman Ben Rosen and Novell Inc. CEO Eric Schmidt. It just secured an additional $35 million from Morgan Stanley Dean Witter & Co. in New York and two other venture capital firms.

**Products:** Sendmail Switch and Sendmail Multi Switch

**Red flags for IT:**
- High-end enterprise messaging servers already include robust MTAs and a wide variety of GUI tools for managing their systems.
- Adding Sendmail's product might just be overkill.
- If your company is using the free, open-source version effectively now, why would it pay for the upgrade?

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## Up Against The Big Guys

Sendmail competes in two markets, corporate and Internet service provider. It faces stiff competition in both. Sendmail CEO Greg Olson estimates that one quarter of the company's business is with service providers, while sales to corporate customers make up the rest.

In the corporate market, messaging systems such as Microsoft's Exchange Server, Lotus' Notes/Domino and Novell Inc.'s GroupWise include a Simple Mail Transfer Protocol gateway with their products. These firms have saturated the Fortune 1,000 and continue to move downmarket to small and medium-size businesses.

Even so, analysts say Sendmail stands a chance against the competition because of its low price.

Analyst Mark Levitt at International Data Corp. says a high percentage of companies with Notes and Exchange still use the free Sendmail MTA and may have several MTA servers dedicated to the Internet and internal e-mail.

Information technology administrators "don't choose to use the MTAs with those products because they don't provide the same reliability and scalability of Sendmail," Levitt says. "As long as the price remains aggressive, there's little reason why an IT administrator would be reluctant to pay for the functionality and support of the commercial version."

Still, companies like Critical Path Inc. in San Francisco and Rockliffe Systems Inc. in Santa Clara, Calif., offer an SMTP gateway to many e-mail systems.

In the Internet service provider market, Sendmail competes with companies like Software.com Inc. in Santa Barbara, Calif., Ipswitch Inc. in Lexington, Mass., and Sun Microsystems Inc. Each of these firms offers a scalable messaging product with an Internet gateway.

Mirapoint Inc. in Cupertino, Calif., also develops a Web mail appliance with preconfigured software and hardware in a Unix-derivative environment. The turnkey approach lowers the administrative cost for corporate customers and service providers alike. Analysts say appliances offer an attractive alternative to providers looking to streamline costs.

Olson says price and the existing penetration of the free product will better his company's competitive chances.

Pricing for Sendmail Switch starts at $495, and pricing for Sendmail Multi Switch begins at $4,495. Pricing for Domino Mail Server 5.0 starts at $695, Exchange 5.5 starts at $799 and GroupWise 5.5 starts at $718. – *Lee Copeland*

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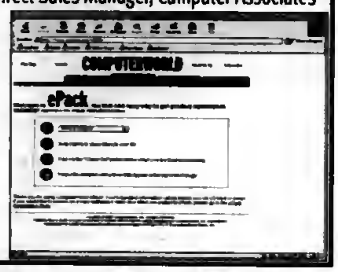
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# The Web's Master Builders

**If you've worked through the paradigm from back-office implementations to Web development and thrown in some project management and business process flow skills, then you may be ripe for a job as an Internet architect – a lucrative new profession that's earning some as much as $125,000 per year. By Deborah Radcliff**

**Who:** Shailja Dhruva-Khatri

**Company:** Teleremote.com, a health care business-to-business e-commerce start-up in Chicago

**Previous title:** E-commerce project lead, independent consultant

**Reports to:** Chief technology officer

**Key skill:** Thoroughly understand business objectives and match those to the optimum technology path. And once you've completed that analysis, don't shy away from telling executives the most efficient path to take.

After about five years of Internet integration and Web work, Shailja Dhruva-Khatri amassed the right combination of vertical industry and bleeding-edge skills to tackle the position of senior Internet architect at an e-commerce start-up.

Fully aware of the rigors, she accepted a full-time position in January at Teleremote.com for three reasons: challenge, potential and the promise of working in wireless and other cutting-edge technologies down the road.

Web marketing is giving way to true, transactional e-commerce. Leaders of these e-commerce projects will be responsible for the underpinnings of the e-commerce strategy itself.

For nine years, Dhruva-Khatri has been evolving her skills to get to this point. And now, as senior Internet architect, she's heading an ambitious project in the health care industry.

Her skills mirror those of many technologists who make a point of staying on the frontier of technology. In 1991, she graduated from the University of Texas at Austin with a master's degree in computer engineering. Her first job was building user-friendly graphical user interfaces for an aeronautics firm.

## A Different View

Later, as a consultant, Dhruva-Khatri learned to look at computer systems from a business point of view.

"I got my grounding in life cycle systems — from business analysis, system reqoirements, testing, pilot testing and production," Dhruva-Khatri says.

She also gained important vertical industry knowledge in finance and other sectors, along with vital Web, enterprise resource planning (ERP) implementation and relational database skills. Together, these skills make her what she is today.

**Biggest challenge:** "At this point early in the project, a lot of information is being thrown at me. It's a challenge to get my arms around all of this and put the pieces of the jigsaw puzzle together," says Dhruva-Khatri. "But I love this part."

Dhruva-Khatri currently is conducting business analysis through regular meetings with Teleremote's chief technology officer and the businesspeople from outside organizations who will tap into the new system.

"I'm setting a baseline," she says. "I'm asking our customers 'What are your current processes? What do you envision the Web doing for you? And how would our application redefine some of those processes?' "

**Diplomacy:** To best answer those questions, Adam Workman, a senior Internet architect at Sprint Network Enterprises Inc., a consulting firm in Houston, says it helps to tell the client how the process change will make them more efficient.

One client, a large publisher, wanted to put its material on the Web, Workman says. That couldn't be done unless the publisher switched from flat files to a relational database system.

"This client, a publisher, was printing out of a flat-file database system, physically laying out, cutting and pasting these documents, then sending them to the printer, who was digitizing them all over again," Workman explains. "We identified a SQL server through which they could electronically send documents to a printer — and draw that same data to a Web site. They were ecstatic."

**Keeping current:** While Dhruva-Khatri researches in what little free time she has, she gains most of her training on the job.

Her motto: Utilize 90% of her current skills and gain 10% for every new job she takes on. She also looks for work where she isn't pigeonholed into project management but can stay somewhat hands-on.

**Career outlook:** In spite of the nomadic images this type of work conjures, don't count on building an Internet architecture and moving on. After all, upgrading to cutting-edge technologies is what's keeping electronic businesses like Amazon.com Inc. and Santa Clara, Calif.-based Yahoo Inc. on top.

"It's not like building a house and moving away," Dhruva-Khatri says. "You will always have to look at performance, reliability and other architectural upgrades to stay successful."

*Radcliff is a contributing writer in Northern California. She can be reached at DeRad@aol.com.*

## Just the Facts

**Responsibilities:**
Development of customer applications, Web servers and back-office infrastructure linkage; management of project deliverables, cross-unit communication and training, says Peter O'Keefe, a staffing specialist at Romac Information Technology, a consulting firm in Tampa, Fla.

**Skills:**
- High-level e-commerce project management
- Business analysis
- Database management systems; Visual Basic and VB Script
- Back-office system integration (including legacy work)
- ERP implementation
- Java, JavaBean, C++, Perl, Common Object Request Broker Architecture, Component Object Model/Distributed Component Object Model, HTML, Unix, Linux and Windows NT
- Understanding of telecommunications networking
- Understanding of Web security infrastructure

**Career path:**
Most gain their skills through consulting on bleeding-edge projects. Typical employers are consulting and e-commerce start-ups, according to Kent Brown, a recruiter at Pencom Systems Inc.'s Chicago office.

**Salary range:**
$85,000 to $125,000, based on experience, seniority and the type of company, says Brown.

*– Deborah Radcliff*

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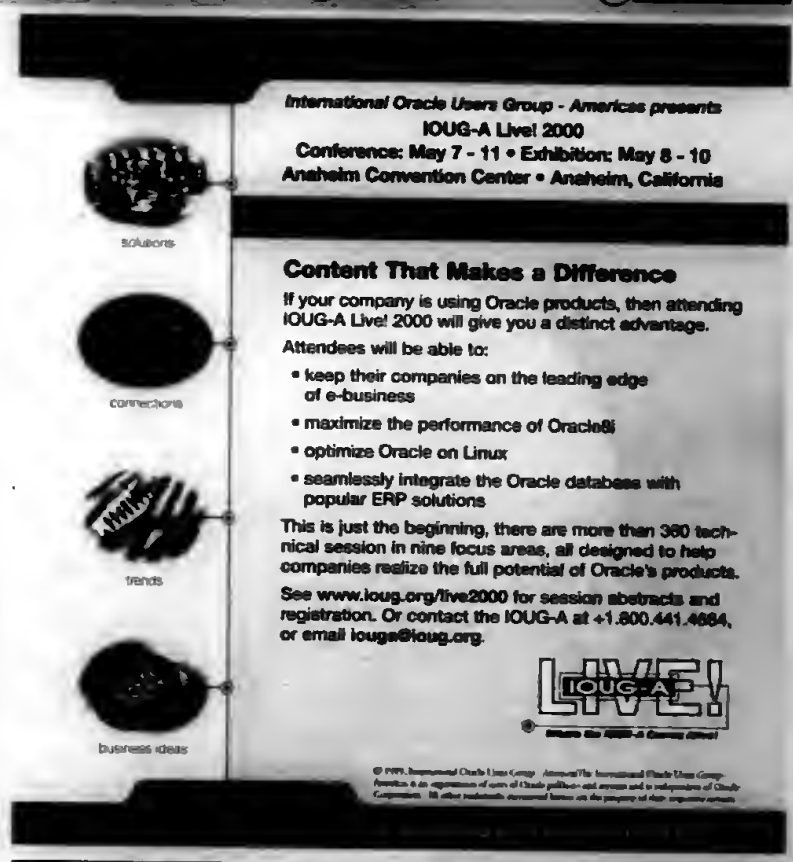
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# IT Careers in Consulting

**In the world of consulting in the information technology industry, there are two types of consultants. The first is the large operations providing strategic planning, IT development and implementation, and follow-up service to assure success. These are the firms that are remaking themselves to be more flexible and to compete with the second group, a nimble cluster of companies that avoid the brick and mortar mentality and provide IT expertise and staffing when and where it's needed.**

**Regardless of the two character types, the firms offer one common factor: a variety of technologically intriguing projects for the people most in demand in today's tight labor market.**



*by Carole Hedden*

## EDP Contract Services
### *Newton, MA*

Staffing firms face a bit of identity crisis this year, says Miner Smith, area vice president for EDP Contract Services, one of the TAC Worldwide companies. "There's the issue of in-depth consulting versus temporary staffing," he explains. "We, at EDP, are not a technology company. We are a staffing company with a niche for IT business."

EDP boasts of sales of $250 million a year, growing an average of 10 to 20 percent per year for the last five years. "We expect that same level of growth in the year 2000," says Smith. "Last year, everyone was still caught up in the Y2K desperation and a flurry of activity in finishing testing. All that while, there was pent up demand for web development. We expect an explosion of demand for talented, senior level web development professionals by the end of the first quarter."

EDP offers two types of arrangements for IT professionals. The first is a straight salary and benefits package for employees who then are assigned to projects. A second option, offering a bit more flexibility, provides employees with hourly wages, in lieu of salary plus benefits. Smith is looking for people with experience in web application design and strong JAVA skills. "You have to be able to drop into an environment with time sensitive deadlines, get to work and be effective right away," he adds. "There is a lot at stake about making that deadline, and not everyone thrives in this type of environment."

In addition to using the web extensively as its own business tool, EDP offers employees a varied client community. "We decided a couple of years ago that we couldn't be all things for all people," says Smith. "Instead, we've formed alliances with strategic clients who can offer interesting assignments – that's what people working with EDP want most. Once you wrap your business around that philosophy, you work aggressively with clients about what technologies and projects are coming next. In addition, we don't really see an issue surrounding transition from one project to another. With demand as high as it is right now, we have to assume you always have two or three offers. We see that as a critical point in helping our clients make staffing decisions quickly."

While EDP operates throughout the country, Smith says the company's hottest markets in 2000 are Colorado, Florida, Texas and in the metropolitan areas of Atlanta and Seattle.

## The Eliassen Group
### *Wakefield, MA*

Avoiding the bricks and mortar mentality, The Eliassen Group is a network of IT staffing experts forged together on the basis of their expertise and their commitment to the client base. Tess Frey-Bennett, vice president and general manager, says the model works well, creating revenue growth of 53 percent in 1999.

"We also became very focused and concentrated our sales efforts on vertical sectors of industry. It was a significant change as we've found our clients want us to know their business requirements and issues as well as we know their technology needs. Our goal is to meet our clients head-on in a business-to-business manner."

The vertical markets of focus include financial services, telecommunications, utilities, medical, education and government. For Eliassen Group that has also meant a shift in how employees contract out.

"With the huge e-business initiatives under way, we must provide 24-by-7 service. The clients are spending so much of their day in meetings that the actual service work and development is taking place after traditional hours. Just think about a financial client-the need to transfer funds may come at any hour, and we have to be there for them."

The Eliassen Group currently has 490 consultants on billing with a 33 percent growth rate planned for 2000.

"Industry growth is about 20 to 25 percent, so we're quite proud of what we have been able to accomplish."

says Frey-Bennett. "We have to stay in front of the talent shortage, particularly in the northeast, and we're doing this through a combination of improved processes, improved retention of consultants for multiple assignments and emphasis on recruiting through our web site, www.eliassen.com."

In addition, Eliassen Group places a priority on training and mentoring. "This helps us better prepare the people working with our clients and helps us stay on top of the technology curve," she says. Among the shifts they have identified is a need for quality assurance professionals in IT development.

"Typically, the quality assurance was done toward the final phases of a development project," says Frey-Bennett. "This is no longer true. Now, we are connecting so many systems and platforms that QA is part of the first stage of application development."

The Eliassen Group is looking for people who have worked in deep technology pockets.

"We're very strongly software engineering driven," she adds. "Within that discipline, we tend to focus on quality assurance, web and Internet development, system administrators and data modelers who can add value from the first day. From the employee view, we have a strong reputation, specifically here in the Boston and North Carolina research triangle markets. We're working on some of the hottest tech jobs, and that's what really juices people. You can keep your skills sharp while working on some of the newest financial applications and medical/clinical trial software."

"We also added a strategic relations group this year. It is a group of employees who work hard to make sure consultants get what they need to succeed and grow. They're a live voice to support our consultants."

## Kanbay, Inc.
### *Rosemont, IL*

In the land of IT staffing firms, any company with over 10 years in the business is a veteran. Such is the case with Kanbay, Inc., a partnership formed in 1987 in the Chicago area to provide mainframe support and to build applications for major clients.

"Today, we're retooling the company," says Mark Peters, national resource manager. "Our clients come to us to begin implementing what we call the E-Path – a transition to web-enabled business systems. We help the client identify the strategy, the infrastructure needed and then implement and brand their e-business presence."

With just over 1,000 employees, Kanbay hired approximately 100 U.S. employees in 1999 and expects about the same increase in jobs this year. "While we need people with experience, we also realize there's a shortage in the labor market. That's why we started a new program to add 20 to 25 entry level people each year, offering a learning regime that will help them get the experience needed to work with our clients," says Peters.



Kanbay employees tend to work on client teams, but they also are paired up with a co-worker as part of the company's buddy system. "It's an easy way to learn how Kanbay operates through hands on work while avoiding that body shop mentality of just placing a warm human in a required staffing position."

The company primarily works in telecommunication, financial services, health insurance, and manufacturing distribution and retail. In 1999, the group expanded to service technology companies.

"We have an environment that nurtures creativity," adds Peters. "It's not just a philosophy, we practice the freedom of creativity. And we push for professional growth through academic degrees, certifications, seminars and internal training."

"There is no niche-ing here,' he says. "We practice job rotation so that you can take on projects that include what you like to do, not just provide a skill set fit. It gives you more control over what you do and learn. And we think it's working because our retention rates are over 91 percent – huge in the IT industry."

## Keane, Inc.
### *Boston, MA*

For more than three decades, Keane has helped companies align their information technology infrastructure to business goals and strategies. "We grew up in that kind of environment," says Scott Santoro, director of corporate recruiting. "Keane was once a huge mainframe focused company, but it changed as technology changed. Our goal, however, remained to help companies gain a return on their investment through the competitive use of technology."

Today, Keane, Inc. has 9,000 employees at more than 50 offices throughout the United States, Canada and Europe. Revenues for 1999 were a healthy $1.1 billion. The consulting firm's recent growth began with a reinvention of sorts in the early 90s. After acquiring GE Consulting and AGS Information Systems in 1993 and 1994, Keane quadrupled in size. "These acquisitions provided a network of branch offices across the country and the critical mass to service our Fortune 500 and 1000 clients," says Santoro. "Y2K provided another blitz for us and resulted in our ability to invest again in reinventing the firm."

The blitz was also assisted by Keane's use of the Capability Maturity Model (CMM) to improve IT processes at companies in approximately a 12-month timeframe, beating the industry standard of 30 months. "That was a catalyst, providing valued inroads on our performance ability with clients," Santoro adds. Keane's leaders added new skills to the firm by renewing skills among current employees and acquiring a battery of new capabilities – data warehousing through Emergent Corporation; customer relationship management through Fourth Tier; a broad range of e-solutions capabilities from Parallax, Jamison/Gold and Advanced Solutions, and Keane Management Consultants through the acquisition of both Bricker & Associates and Amherst Consulting Group, specialists in management and business IT strategy.

The new Keane model is to plan, build and manage IT systems that help clients achieve business advantage. One example of this includes a recent contract with Gateway to manage the company's in-house IT systems while Gateway focuses on selling computers.

"With that type of mission, we are in need of just about every type of technical skill," Santoro explains. "We need the traditional client/server expertise, as well as the object-oriented design and e-programming capabilities. We're also looking at resumes for more than the acronyms – we need to know whether the candidate has consulting characteristics and business acumen."

Keane's continuous development process for employees includes a knowledge management system, job rotation, and professional development managers assigned to work with no more than 30 employees to focus on keeping their learning and career growth on track. "These are professionals responsible for keeping Keane's skill breadth and depth where it needs to be," Santoro says.

Employees work at branch offices, where additional training is provided to serve the clients in that particular geographic

region. And, beyond the branch locations, Keane employees can work in one of the Keane practice areas – data warehousing, e-solutions, customer-relationship management, application outsourcing, application development and operations improvement consulting.

"We are a project-based culture, but which has little hierarchy," says Santoro. "At Keane, your career path will provide you with a well-rounded experience, working on teams with peers who are experts in a multitude of technologies, and where you have opportunities and can plan where you are going."

## KPMG Consulting, LLC
### *New York, NY*

When you think KPMG, visions of a global, Big Five firm that provides consulting, tax and audit services probably comes to mind. Not so. KPMG LLP has separated its consulting business into a new operation as a way to remain competitive in the field of technical consulting. The newly incorporated KPMG Consulting, LLC is aligned with Cisco Systems, which invested $1 billion in this mature start-up. Microsoft is another of its partners.

"If you look back, the big firms started consulting practices based on the core skills of project management and analysis," recalls Sean Huurman, director of consulting recruiting. "All of the large firms are having to make some kind of play to go it on their own to attract the right type of talent, and to operate in this business."

KPMG Consulting is aggressively pursuing a vision, that of being an Internet integrator and e-business. "We



are hiring talent and re-skilling previous technological skills for this new operation," says Huurman. He reports KPMG Consulting will hire approximately 2,000 employees in 2000.

Huurman says KPMG is hiring in three critical areas. Strategy and Development is looking for those who can help clients with Internet tools, ideas and design. The Design portion of the business includes actual web designers – people who know what the page needs to look like to make the site as interactive as possible. "It's a huge professional field that serves our clients," adds Huurman. "These are the people who know why the text needs to be where it is and how the visitor moves through an Internet site. It's just as complex as any marketing campaign."

The third area is Implementation, where KPMG consulting helps companies align at the back-end of the e-business operation. "Our alliance with Cisco helps us drive the integration and architecture as it relates to the hardware needed for an Extranet, Intranet or Internet," Huurman explains.

KPMG Consulting's lines of business include public sector, financial services, healthcare, consumer and industrial markets, high technology, and communications and content. The array of clients and work in e-integration is balanced with an internal learning structure known as the Center for Leadership Development. "In addition to exciting work, employees with KPMG Consulting get a good blend of what candidates are looking for – the stability and infrastructure of KPMG Consulting with the equity stake common among dot-com businesses.

## The Revere Group
### *Deerfield, IL*

Eight years ago, Todd Miller and Michael Parks left their jobs to launch their own business in Michael's living room with the hope and vision of becoming a local version of a Big Five consulting firm. Today, the company remains privately held and has grown to six offices around the country. It is among the movers and shakers in the e-business marketplace, growing from a handful of employees to more than 400.

To service clients, The Revere Group has four practice areas – Strategy, Front Office, Enterprise Applications and IT Management Solutions. In these practice areas, The Revere Group has vertical expertise in areas such as e-procurement, customer relationship management and supply chain. "We deploy all of our service offerings here in Chicago, while other Revere offices apply solutions specific to their marketplace," says Brian Van Vooren, employment manager. The firm has offices in Boston, Charlotte, Cleveland, Denver and Milwaukee. "Chicago has an emphasis in advanced technologies, while Boston has an emphasis in Lawson solutions," he adds.

One of the differentiators about The Revere Group is its culture. "Our culture focuses on balancing work and personal life. Our emphasis has been to provide local engagements for our consultants," says Van Vooren. "If your work takes you out of town more than two weeks per quarter, then you are eligible to receive a travel bonus. As we've grown, we've worked hard to keep the emphasis on local engagements, but the reality of growth is some travel. Nevertheless, we make sure people take vacation and have a life – we work hard and play hard."

The firm is looking for people in all offices with previous consulting background, exposure to e-business environments and who have technical or functional expertise in developing or deploying applications and/or business processes. "The more areas of expertise and experience you have, the more versatile you become for assignments," says Van Vooren, who notes that each employee receives an average of 80 hours of training each year.

The company prides itself on an environment of cooperation and camaraderie. "You don't see a lot of walls here and that's symbolic of who we are," says Van Vooren. "And we work hard to remain entrepreneurial by constantly asking for new ideas and implementing them. We also have the agility and sustainability of a 27-foot sailboat. We are not a barge that is difficult to turn or a windjammer, shifting directions with ease but maybe having a hard time riding out a storm. We're somewhere between the two – in this for the long haul but able to adapt to change."

Clients who have engaged The Revere Group include food and beverage firms, financial institutions, dot-com companies and not-for-profit organizations. "We think these clients have unique projects that start with envisioning e-solutions and doing better in the Internet space. We help them identify that vision and take it through the e-lifecycle," says Van Vooren.

## SyllogisTeks
### *Chesterfield, MO*

While SyllogisTeks provides staffing and consulting services to companies in the greater St. Louis area, the company also has its own software development unit and a core product known as MRCS® (Multiple Report Creation System). "We also provide staffing for short-term and long-term projects, permanent placements and provide a right-to-hire system for our clients and employees," says Lisa Schlueter, communication director for SyllogisTeks.

The primary agenda for SyllogisTeks is finding the right person for its clients' IT needs. "It's our job to understand what they want so we can provide the best candidate possible, the first time," she adds.

Clients include financial services, manufacturing and health care institutions, among others. "When we look at a resume, we're looking for someone with experience and

a good attitude," adds Schlueter. "People who want to work with SyllogisTeks tend to be those who want to be part of a team, who have relevant skills and a desire for varied assignments working on a variety of platforms."

The company tends to place individuals to work on existing client teams. "They are representing our entire company, so they need the ability to be strong communicators, have a drive to learn and the ability to collaborate on a project."

In addition to working with employees to prepare them for their next engagement, SyllogisTeks belongs to the Business Training Library, an electronic training institution. "And because we're working closely with clients and consultants, we can project what the next training requirements will be," adds Schlueter.

"So why us over anyone else?" Schlueter queries. "Because here you are a person in an environment that is very family-like. From the interview on, where you want to work, the hours you want and the types of engagements you want are our primary concern."

## Tech Software, Inc.
### *Manhasset, NY*

For almost two decades, Walden Leverich has watched the world of IT consulting shift and turn. As the son of Tech Software, Inc.'s founder, he watched as the computer consulting work shifted from the then-current IBM-based architecture that was the cutting edge of the 1980s to today's e-commerce, web-enabled situation.

"Obviously the shift in technology has caused our work to change," says Leverich, who today is president of Tech Software. "First we shifted to the AS400 platform, but it isn't graphical or 'cool' looking. Over the past three years, we've moved toward e-commerce, thin client web front ends and enterprise scale back ends." Tech Software is a partner with Sterling, IBM and BEA.

"We chose not to do much Y2K remediation so we are well positioned for the future. Many companies didn't have time or money last year for much else, but this year is a completely different story." Leverich plans to double the size of his company again in the coming six months.

The majority of Tech Software's employees are at client locations in New York, New Jersey and Connecticut. "The most important skill our clients need is object-oriented enterprise design mindset – that mindset of looking at and attacking a problem from a high-level design down through programming in specific languages. It's most difficult to find a person with that design and business understanding," adds Leverich. "We can help people overcome a gap in technical skills, but we can't make someone think and design on an enterprise-wide scale."

Once at Tech Software, employees "continue learning at an incredible rate," says Leverich. "We want to bring you into our company based on your ability and thirst to learn. Here you can change the work environment without changing jobs so you'll see and experience things while avoiding becoming stale. We've had almost 20 years in enterprise scale development experience so there's a tradition at Tech Software for finding better, faster ways to solve business issues."

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# Investment Clubs Move Online

## *Start-up Bivio offers free club accounting*

BY MARIA TROMBLY

A NEW BOULDER, COLO.-based online service is taking it upon itself to transform the back-office operations of investment clubs — semiformal informational consortia that fill a niche between do-it-yourself online brokerages and full-service houses.



At *www.bivio.com*, investment clubs can let Bivio LLC handle their books and streamline communications and research. Previously, these clubs handled their books either by creating a system from scratch or by buying software from the National Association of Investors Corp. (NAIC) in Royal Oak, Mich.

Intelligent Brothers and Sisters (IBAS), an investment club in Maryland, ordered a free demonstration of the NAIC package when it was starting up in October.

"With the software package, there were more features," said IBAS member Brian Collins, a servicing manager at CRIIMI MAE Inc. [NYSE:CMM] in Rockville, Md. But, he said, the newly formed club didn't need all the features, and members decided instead to invest the money they would have spent on the software. They chose a free alternative to manage their club's data: Bivio's online service.

"We use a regular browser to access it and can look at it anywhere," Collins said. "All of our members are set up with individual e-mail addresses — that's our notification avenue for when our meetings are going to be taking place."

The club currently has 12 members. "We started it to educate our friends and families about investing," Collins said. Each member contributes $25 per month, but the goal is to give members enough confidence to begin investing on their own.

### Benchmarking Service

Bivio's site, which was launched last fall, doesn't yet track how well the clubs do with their investments relative to other clubs, but it will make that service available in the future.

Bivio has signed up more than 550 clubs thus far, and 1,700 individuals nationwide regularly use the site.

According to NAIC, there are between 80,000 and 90,000 investment clubs in the U.S., with a total of more than 1 million members. NAIC services some 37,000 of those clubs.

NAIC will also roll out online club services to supplement the educational materials it now offers online, said Mac Almond, NAIC's Web site director.

**Investment clubs**

**Bivio offers the following back-office services:**

- Online accounting and tax preparation
- Free e-mail, discussion lists and chats for club members
- Stock research and investment education
- Online store offering investing books and magazines

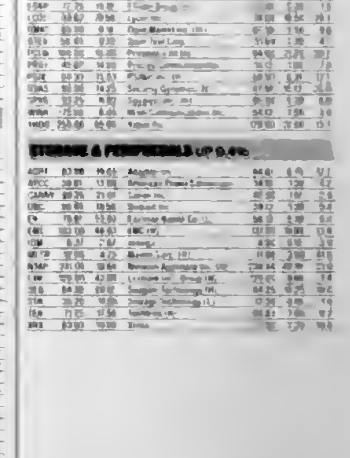




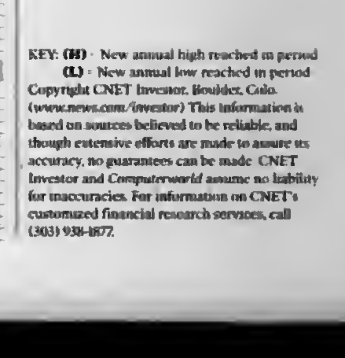












KEY: **(H)** - New annual high reached in period **(L)** - New annual low reached in period

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# ASP

new subscription-based licensing models.

"When you're at the top of the status quo, you're pretty nervous when something changes," said Dwight Davis, an analyst at Boston-based Summit Strategies.

Last November, Microsoft announced the Office Online pilot program, which lets service providers rent out access to Microsoft Office and pay Microsoft by the month. But few providers are actively promoting the service so far.

Chris Le Tocq, an analyst at Gartner Group Inc. in San Jose, said licensing of productivity applications accounts for about 60% of Microsoft revenue.

Microsoft executives have said they expect the emergence of subscription-based licenses to be revenue-neutral. But Le Tocq said competition from Web-based productivity tools like Sun Microsystems Inc.'s forthcoming StarPortal may put pressure on prices.

Meanwhile, several ASPs are offering Microsoft Exchange as a hosted service. Denver-based Qwest Communications International Inc., for instance, charges $15 per month per user.

At an event this spring, Microsoft will introduce its Next Generation Windows Services, which is being directed by Chief Software Architect Bill Gates. It will provide a way to access Microsoft products from a browser.

ASPs are already giving Microsoft's Windows 2000 high marks as a server environment. "Windows 2000 is a fantastic platform for ASPs," said Deepak Swamy, vice president of marketing at Fort Lauderdale, Fla.-based TeleComputing Inc.

Microsoft is also investing in a growing list of ASPs, Internet service providers and telecommunications companies. Recent investments include minority stakes in Jato Communications Corp. in Denver and WinStar Communications Inc. in New York, which both offer high-bandwidth Internet and services to enterprises.

At the same time, Microsoft is developing its own hosted service. The bCentral small business portal, launched last fall, will soon offer Microsoft Office Online. "Microsoft is very much toying with the idea of becoming an ASP or acquiring an ASP," said Lew Hollerbach, an analyst at Aberdeen Group Inc. in Boston.

Robert Rubin, senior vice president and CIO at Elf Atochem North America Inc. in Philadelphia, said he doesn't believe the ASP model makes much sense for large enterprises yet. He said he might consider it for applications that will be used for only a short time or are used by a small group — not for Microsoft applications.

But Jack Riley said the ASP model is appealing to him. Riley is vice president of business development at Encino, Calif.-based Metrociti Mortgage Corp., which outsources its core mortgage software and Office 2000 to Irvine, Calif.-based FutureLink Corp.

"We've been growing at a rate of 50% per year," said Riley, and relying on an ASP lets the company's systems scale without ramping up information technology staffing.

**Sun Microsystems' StarOffice and StarPortal**
Free desktop software will be joined by Web-based version in mid-2000

**ThinkFree.com Corp.'s ThinkFree Office**
Java suite offered free on the Web to consumers; financed by advertising

**myWebOS.com Inc., Desktop.com Inc. and Halfbrain.com Inc.**
Virtual desktops with browser-based productivity tools

## Office Goes Online

Last fall, Microsoft launched its Office Online pilot program, which gave users subscription-based access to Microsoft Office over the Internet. But many application service providers and analysts see the move as a stopgap measure from Microsoft while it prepares a version of Office that's specifically crafted for Internet deployment.

In a conference call held in January, Microsoft's top executives, Steve Ballmer and Bill Gates, dropped hints about a Web-based version of Office that could be offered as a service on a Web site. It was described by Gates as a "new flavor" of Office. Ballmer said Microsoft would reveal details at the company's Forum 2000 event, expected to be held some time this spring.

Several observers said such a version of Office could allow users to access and edit Office documents from a browser on any type of device. However, this ability might loosen Microsoft's grip on the market.

According to analyst Dwight Davis at Boston-based consultancy Summit Strategies Inc., "When they move to a hosted model of deployment, the rationale for using the whole suite goes away. It moves to a more granular approach to software functionality, and that may not play into Microsoft's strengths." - *Dominique Deckmyn*

## MOREONLINE

For *Computerworld* coverage of application service providers and links to related pages, visit our Web site
www.computerworld.com/more

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# Privacy Laws

For Drugstore.com in Bellevue, Wash., federal regulations could, for instance, mandate "opt-in" provisions on notification, compared with the company's default process that now lets customers opt out if they don't want notification on product specials. Andy Stergachis, Drugstore.com's chief pharmacist, said such a change could hinder customers from signing up for notifications.

And the potential for conflicting state regulations "would create a burden," he said. If that happens, "the concept of a single uniform privacy law vs. 50 state [laws] has merit," said Stergachis.

Drugstore.com already follows myriad state and federal rules related to pharmacy practice, including privacy restrictions. Stergachis said the company doesn't sell personally identifiable information.

But pressure for privacy regulations appears to be growing, especially in the wake of the revelation of DoubleClick Inc.'s plan to merge personally identifiable information with data on Web browsing habits. "Things like the DoubleClick incident ... have helped our cause," said Matt Raymond, a spokesman for privacy bill sponsor U.S. Sen. Conrad Burns (R-Mont.).

New York-based DoubleClick quickly acknowledged two weeks ago that its plan was a mistake and last week hired New York's consumer commissioner, Jules Polonetsky, to oversee its privacy activities. (An interview with Polonetsky is at *www.computerworld.com.*) But the moves aren't likely to curb the political furor.

"I don't think DoubleClick's announcement forestalls anything," said Chris Woods, CEO of FollowUp.Net LLC a permission-based Web marketing firm in Westport, Conn. "They brought something to a head that was probably going to a head anyway."

Privacy regulations, with their potential for giving consumers control over how information is shared, can hurt a company's bottom line, especially for companies that sell information. "It puts more control in the users' hands rather than [those of] the companies," said Topher Neumann, director of the Center for Trust Online at New York-based Ernst & Young LLP.

Privacy regulations could ultimately affect Web site design by setting requirements for the display of privacy notices.

Of key concern are regulations that hurt the ability to personalize marketing information. "The beauty of the Web is the fact that you can create these profiles," said Paul Terry, general counsel at Onview.com Inc., a fine art seller in New York.

The U.S. Federal Trade Commission has taken action against companies that post privacy policies and then violate them. Terry said he believes enforcement is a better approach than regulation.

## Privacy Bill Rush

*Some bills that Congress is considering include self-regulation incentives through "safe harbors" that allow companies to satisfy federal regulations by complying with industry guidelines.*

- U.S. Reps. Rich Boucher (D-Va.) and Bob Goodlatte (R-Va.) introduced H.R. 1685, a less restrictive measure that requires companies to post a privacy notice
- U.S. Sens. Conrad Burns (R-Mont.) and Ron Wyden (D-Ore.) introduced S. 809, which requires companies to give users an "opt-out" ability before information is shared
- U.S. Rep. Ed Markey (D-Mass.) introduced H.R. 3321, which requires an "opt-in" capability
- All 44 states in legislative session this year are expected to consider Internet privacy legislation; bills are pending in 31 states. About 700 bills have been introduced affecting online and off-line privacy

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FRANK HAYES/FRANKLY SPEAKING

# Users rule. Really.

A READER WRITES: "I just read your column entitled 'Hell hath no fury . . .' [Jan. 31]. I get the impression from your article that I should let the users define and possibly dig their own hole when it comes to [redesigning unusable applications]. That would defeat my purpose in (IT) life. One of my biggest challenges in this field is to help users interpret their requests into functional computer software. It's far easier to give them exactly what they want and then put the blame back on them. I prefer to guide them as much as I can so that we as a company develop software that makes everybody's life easier and helps the bottom line."

He's right, of course — about how to work with users, not about what I was suggesting. (That column was about getting user support and involvement for otherwise impossible projects.) We have to get in tight with users to guide them and help them make sense of the technology available. And we need them as much as they need us. We know IT, but they know the business.

So why do so many IT people refuse to buy into that idea?

Face it: For most of us, users are mainly an annoyance when we're building systems. They don't understand the technology. They don't like it when they get what they asked for. They're always changing the requirements and demanding the inelegant, the hard to design, the impossible to code.

Besides, isn't IT cozying up to users just some management guru's fatheaded fad? Why can't users just throw the specs over the wall, let us do our work and accept what we throw back?

That's not an idle question. We used to develop systems that way. Why do we have to change?

Because the pivot point, the fulcrum we get our leverage from, has changed.

In the old days, our job was about data. We collected it, protected it, massaged it and doled it out in reports (and, after LANs arrived, in client/server applications). Sure, we also managed and maintained a lot of technology. But still, at the heart of our mission was the data.

And data structures don't change much over time. They can't, because changing a data structure means changing every application, every screen, every report, every protocol that depends on that data structure.

So every new application was really just another variation on an old theme: Fetch the data, present the data, process the data, store the data.

But today our job is about business. It's about a whole slew of specialties we're supposed to support — sales, manufacturing, supply chains, just-in-time everything. And not just the data-related parts. It's also about communications, trust, relationship building, deal-closing.

*Getting in close with users isn't some annoying gimmick or business fad. This time it's for real.*



Those are real, immensely complex business processes. And they change constantly. And the only people who really know them are users. But the users can't formalize what they know into a spec, even if they had the time. And that spec wouldn't be valid by the time we finished a new system anyway.

As stable and unchanging as data structures were before — that's how slippery business processes are now.

And that's why we need users, why we have to be in so close with them today. Many — maybe most — of the applications and systems we'll be building for the next decade won't be about data. They'll be about what users do. And that will keep changing. We'll have to help make sense of all that. And we'll have to keep refining and changing our understanding — and our systems — to match what users really need each day.

So don't kid yourself. Getting in close with users isn't some annoying gimmick or business fad. This time it's for real. Things have changed — and for IT, how we leverage that change will define how well we serve the business. ◗

*Hayes, Computerworld's staff columnist, has covered IT for more than 20 years. His e-mail address is frank_hayes@computerworld.com.*

## SHARK TANK

**THANKS (PUBLIC-SECTOR VERSION)** Pilot fish goes to work at an Army base. One duty is to reboot an e-mail server daily to keep it from crashing. He pokes around, tunes it up, and the server goes to 99.5% idle. Problem solved, pilot fish tells co-sysadmin (who set up the server). Five crash-free months later, an upgrade arrives. Over the weekend, guess who sets it up like she did the old one? And guess what goes crash? Pilot fish fixes the new box. Result: His co-worker changes his password, snubs him in the hallway, and "my boss wonders why I'm leaving after less than two years."

**THANKS (PRIVATE-SECTOR VERSION)** Pilot fish is caught in a wave of cost-cutting layoffs. Eleven months later, she gets the fattest profit-sharing check she's ever seen from her ex-employer and a note from the new CEO, thanking the worker bees for how profitable the company is now.

**COMPANY COMPTROLLER** is so upset he calls pilot fish CIO to drive across town and collect him from another office. What's wrong? pilot fish asks. Alarmed comptroller saw a clerk making copies of a supposed-to-be-private memo he'd written. How come? "We do it all the time," she said. She needed scrap paper, so she took the trashed memo from the wastebasket to manufacture some at the copier.

**PAD THIS** Company with special project in mind hires veteran software developer pilot fish. Pilot fish writes 60-page technical document laying out design, milestones, 18-month time line for the job. Too long, the boss says. Pilot fish goes back to the drawing board, squeezes it down to 15 months. A few weeks into the project, pilot fish gets "adjusted" time line – now just *nine* months. Why? Says the boss: "Programmers always pad their schedules."

**Y2K-PLUS-10-WEEKS** and counting: Pilot fish John Koskinen (yeah, the Y2k czar) reports he rented a car last weekend in North Carolina and got slapped with a $10 charge for being an underage driver. "The system thinks you were born in 2039," the clerk told him.

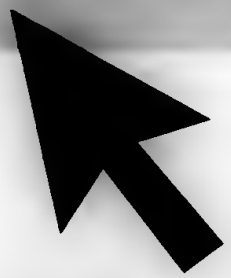
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## The 5th Wave




"You can do a lot with a PalmPilot, and I guess dressing one up in G.I. Joe clothes and calling it your little desk commander is okay, too."

# Favorites



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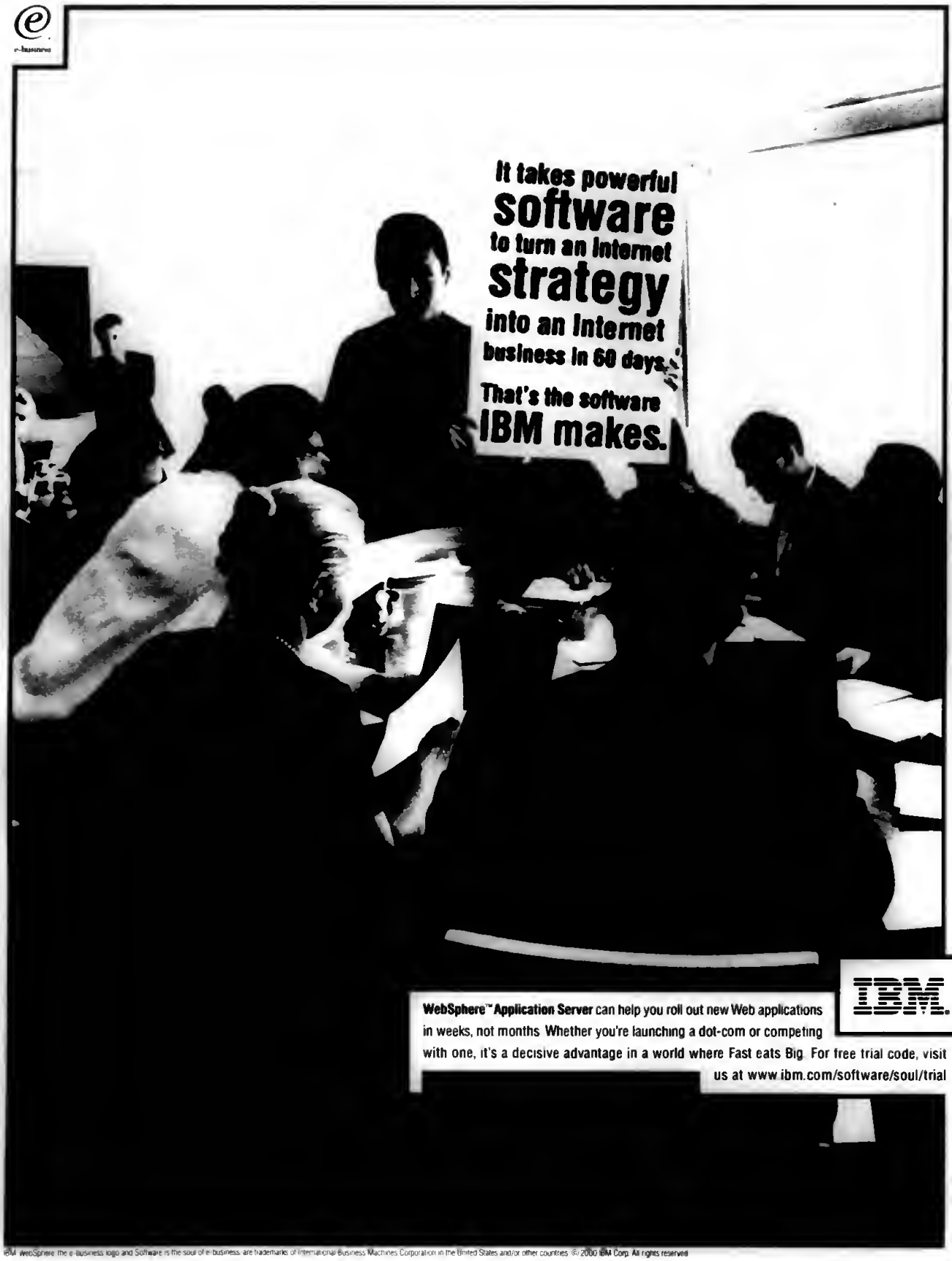
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